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by

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Δὲ Θέλω τίποτε ἄλλο παρὰ νὰ μιλήσω ἀπλά, νὰ μοῦ δοθεῖ
ἐτούτη ἡ χάρη.
Γιατὶ καὶ τὸ τραγούδι τὸ φορτώσαμε μὲ τόσες μουσικὲς
ποῦ σιγὰ σιγὰ βουλιάζει
καὶ τὴν τέχνη μας τὴ στολίσουμε τόσο πολὺ ποὺ φαγώθηκε
ἀπὸ τὰ μαλάματα τὸ πρόσωπό της
κι' εἶναι καιρὸς νὰ ποῦμε τὰ λιγοστά μας λόγια γιατί ἡ
ψυχὴ μας αὔριο κάνει πανιά.

I want nothing but to speak simply, to be given
that pleasure.
For we have burdened our song with so many melodies
that it is gradually sinking
and we have adorned our art so much that its surface
has been fretted away by guilt
and it is time that we speak our little words because
tomorrow our soul sets sail.

George Seferis,
Logbook B, Alexandria, 1944.

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TITLA KANG WATU KANG NOUKO NEPA!

Nouko nepa imuhung kang. Surat apa iibaa. Nouko nepabo imuhung kang. Akmi ni surat nok wubaamante mee Woisika yelak taning. Anmante surat apa ni bei mane taming yelak nok mee itenaa. Surat apa mi loong Woisika yelak tuu ni met mee itama, anmante surot apa mi Inggris yelakbee ni mee itama, anih dunia buktaa gal gaima baang kang. Aha surot apabee ni bei nuua piaa yennok taning mee surot apa itenaa. Apa mi gaima mee Woisika mi sinih sikoo yeen taning. Naate si sifining taak, sibaat tafe, si sak abah iseimaa wonaarang lam lami yaa manaawo isei woo. Mee ak yeen taninou ni mee apa mi.

Aha surat apa mi lakbo titla watu si kawaaaisa toon sikawaaingdang akmi an mee apa mi. Ni bei lak piaa mee mitawahsinaa ahlouna nouko nepa i kang kang baa. Surat apa mi mee yesikahyeenda ang mee Linus Laumau Kamengmai yepa ga yaa yemila mira itun miyawaalsibo se wotitlarahbo yetaam yesung gal yeeisama gaasultanou akmi mee mi. Lakbo ni mee apa mi lakbo dungmok nibaahmibo kawaaitanou ak ni mee apa mi.

Nouko nepa lak yepaisang piaa worahbo mee wonibaangdahbo, almabo surot apa wobaaha yekaril yeweta apamluna ak gatakte ante lak yepaisang mee tabeh yaa yen anih gal mee tabeh si ninsi. Yetanaa mik ni ikang baa. Dumokbo Woisika yelak wufunsi gatang kanga:

- (1) Linus Laumau Kamengmai
- (2) Johanes Langwate Laure
- (3) Markus Mailau Langkameng
- (4) Andreas Lauwang Asafa
- (5) Ruben Salmana Langasa

Aha mee Woisika yelak taninga tanaa wofunlaisinaa. Sipa Willem Stokhof ahakul gatang kang Linus Laumau Kamengmai tanaa Jakartaa mi koo misileesi.

Toningdangbo i nil tulin lak ahakul nuaananabo mee adat yeen taninga
bilenih anih dungmokbo ina gabaahmi gal gawaawang anih gal gaopansinaa.
Surot apa mi nitaeng wobaangdahbo, nouko nepa ni isoi ikailangnaa.

Imuhung kang, mee se akmi yedii.

Itung lapangdang nil kul se simitataausi.

KATA PENGANTAR

Obyek penelitian karangan ini dipusatkan pada tata bunyi Bahasa Woisika. Bahasa Woisika adalah satu bahasa non-Austronesis yang digunakan di kepulauan Alor, Nusa Tenggara Timur, yang dapat lagi dibahas atas beberapa varian geografis; Lembur, Petimpui, Kamana, Kamot, Kamengmi, Ateita, Pido, Langkuru/Kolomana, Silaipui dan Apui. Bahan penelitian terutama berdasarkan varian Ateita.

Jumlah pemakai bahasa ini kira-kira 12.000 orang; penutur varian Ateita tidak lebih dari 500 orang.

Dalam monograf ini diberikan satu deskripsi mengenai pokok-pokok yang tersebut di bawah ini:

- (1) Ciri-ciri distingtif (lihat chart 7)
- (2) Segmen-segmen distingtif:
 - 2.1. non-silabis (lihat 3.1., 3.3.)
 - 2.2. silabis (lihat 3.4., 3.6.)
- (3) Aktualisasi segmen-segmen distingtif (lihat 3.2., 3.5.)
- (4) Fonotaktik (lihat 8.)
- (5) Organisasi prominensi:
 - 5.1. tekanan (lihat 4.1.)
 - 5.2. intonasi (lihat 4.3.)
- (6) Variasi (lihat 5.)
- (7) Ciri-ciri ekspresif (lihat 7.)
- (8) Sandi antar kata (lihat 9.)
- (9) Ortografi (lihat 10.)

Sebagai tambahan dicantumkan satu teks dalam ejaan fonetis (11.1.), ejaan fonemis (11.2.), terjemahan harafiah dalam bahasa Inggris (11.3.), terjemahan dalam bahasa Indonesia dari tangan responden L. Kamengmai (11.4.), terjemahan sastra dalam bahasa Inggris (11.5.) dan akhirnya teks ini disajikan lagi (11.6.) tetapi di dalam ejaan seperti yang diciptakan dalam par. 10.

Dalam rangka penelitian keadaan bahasa di kepulauan Alor ini yang dibiayai oleh Netherlands Foundation for the Advancement of Tropical Research (grant W38-7) sudah diterbitkan atau akan diterbitkan dalam waktu singkat karangan-karangan berikut:

ASAFA, A., R. LANGASA, J. LAURE and W. STOKHOF

- 1975 *Orang mengong; satu ceritera dalam bahasa Woisika.*
Kupang, 9 hlm.

GOMANG, H.D.R., G. LUMBAKAANA, H. STEINHAUER and L. SULUWETANG

- 1975 *Orang mengong; satu ceritera dalam bahasa Blagar.* Kupang,
16 hlm.

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- 1978 'Woisika Text'. In: John W.M. Verhaar, ed. *Miscellaneous Studies in Indonesian and Languages in Indonesia* 5, 34-57.
Jakarta: NUSA.

STEINHAUER, H.

- 1977 '"Going" and "Coming" in the Blagar of Dolap (Pura-Alor, Indonesia)'. In: Soepomo Poedjosoedarmo, ed. *Miscellaneous Studies in Indonesian and Languages in Indonesia* 3, 38-48.
Jakarta: NUSA.

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- 1975 *Preliminary Notes on the Alor and Pantar Languages (East Indonesia).* *Pacific Linguistics*, B-43.
- 1977 *Woisika I: An Ethnographic Introduction.* *Pacific Linguistics*, D-19.

W.S.
Jakarta 1978

LIST OF SYMBOLS

"	syllable boundary or morpheme boundary
/	or
~	in free variation with
⧻	not in free variation with
// → []	is realised as
[] ← //	is the realisation of
#	presence of word boundary
--	relevant position in the syllable/word
>→	is adapted as

S	/r, l, m, n, ŋ/	T, t	tense
L	labial	L, l	lax
D	apical	non-b	non-back
G	velar	non-f	non-front
g	glottal	R, r	rounded
V	vowel	unr, non-r	unrounded
C	consonant	h	high
Q	quantity	m	mid
N	nasal	l	low
O	occlusive	v	voice
F	fricative	vcd., vd.	voiced
P	palatal	vcl, vl	voiceless
b	back	prom.m.	prominence marker
c	central	n.sp	normal speech, natural speech
f	front	sl.sp.	slow speech
mf	mid front	rel.m.	relation marker
		d.sp	deliberate speech

[^h], / ^h / prominence peak	[V.], [V:] length
[C̠] (more) rounded	[Cʔ] glottalised
[V̥] breathiness	[Vʔ] backed
[C̥] unrounded	[V̥] lowered
[C-] unreleased	[^h V] fronted
[C̠] dental	[V̥] raised
[^N C] slightly prenasalised	[C̠] reduced
[Ṽ] nasalised	[Ṽ] shortened
[C ^j] palatalised	/̥/ tense
[C ^w] labialised	

W	Woisika
Ind.	Indonesian
K.M	Kupang Malay
A	Andreas Asafa
R	Ruben Langasa
M	Markus Mailua
J	Johanes Laure
L	Linus Kamengmai

0. AIMS

The main object of this paper is to establish the distinctive features, i.e. the sound properties which have a distinguishing function, and to find out how they are combined into units, i.e. phonemes. As framework the theories of Trubetzkoy, Martinet and Ebeling have been chosen.¹ Since an elaborated theoretical exposition seems out of place in a descriptive study, I restrict myself in the following paragraphs to some introductory notes dealing with a few lesser known concepts such as optionality, heavy phonemes, etc.

1. INTRODUCTION

1.1. IDENTIFICATION

Woisika ['wojsika] is a so-called Papuan language (see Wurm 1975:13) spoken in the central part of the island of Alor, Nusa Tenggara Timur (East Indonesia). Together with approximately 11 other languages used on the islands Alor, Pantar, Pura, Tereweng and Ternate, this language has been classified as a Stock-level family within the sub-phylum level Timor-Alor-Pantar Stock of the Trans-New Guinea Phylum (Wurm 1975:710), although such a relationship has not been established conclusively and genetic links with the so-called West Papuan Phylum are demonstrable (Wurm 1975:19, Capell 1975:672, Wurm et al. 1975:950, Stokhof 1975:26). The other Papuan languages spoken in the Alor archipelago are: Lamma, Tewa (Watusake 1973), Blagar (Steinhauer 1977), Nedebang, Kelon, Kabola, Kui/Kiramang, Kafoa, Abui (see Du Bois 1944, 1945, 1961, Nicolspeyer 1941, 1945), Kolana (see Anonymous 1914) and Tanglapui (see map I). Only one Austronesian language is spoken in these islands, namely the Alor language which is closely related to Lamaholot, a language found on the islands of Solor, Lembata, Andonare and in the eastern part of Flores (G. Keraf 1978, also Barnes 1973, 1974, Needham 1956).² I have the impression that the distinction non-Austronesian vs. Austronesian tends to coincide with religious boundaries: non-Muslims and Muslims.

The Alor-Pantar languages can probably be divided into two major sub-groups: the western group which comprises the non-Austronesian languages spoken on Pantar, Pura, Tereweng and Ternate (with the exception of Kelong), and the eastern group consisting of Kelong, Kabola, Kui/Kiramang, Kafoa, Abui, Woisika, Kolana and Tanglapui (see Steinhauer and Stokhof 1977). The Alor-Pantar group shows lexical and typological affinities with several Timor languages, e.g. Buna (Berthe 1959, 1963, 1972; Cowan 1963, 1965), Fataluku (Capell 1972; Campagnolo 1973), Lovaea (Capell 1972), Oirata (Island of Kisar) (de Josselin de Jong 1937; Capell 1944, 1972, 1975). Together they constitute the Timor-Alor-Pantar group which again shows similarities to languages spoken in the Vogelkop peninsula and the Bomberai peninsula (Wurm et al. 1975:950, Voorhoeve 1975:431 ff., Anceaux 1973, also 1958, Cowan 1960, Watuseke 1973, Barnes 1973, Stokhof 1975).

1.2. GEOGRAPHICAL VARIANTS

The Woisika language is defined as the set of variants used by the inhabitants of the area occupied by the *desa*'s (villages) Lembur Timur and Apui in the west, Sidabui, Silaipui and Langkuru in the south, Pido and Taramana in the east and in the centre the *desa*'s Kamot and Woisika (with the important resettlement Bukapiting as its administrative centre). The Woisika area is bordered in the south by Kui/Kiramang and Kolana and in the east by Tanglapui. The western part of the area is bordered by Abui variants. The number of speakers is estimated at 12,000. The following provisional variant division has been posited on the basis of information from informants and lexical samples (see map II):

I Lembur, II Petimpui, III Kamana, IV Kamot, V Kamengmi,
VI Ateita, VII Pido, VIII Langkuru/Kolomana, IX Silaipui,
X Apui.

The basic variant chosen for description here is the Ateita variant. To date, the following provisional sub-divisions are posited:

VI. 1.1 Pukeng	VI. 3.1 Maumang	VI. 5.1 Domang
2 Sinokila	2 Takaikul	2 Lambeta
VI. 2.1 Atomang	3 Bilamang	
2 Puimota	4 Puiwela	
3 Manegeng	VI. 4.1 Ateita	
4 Susuimang	2 Manasamang	
5 Molpui	3 Sumang	
	4 Saimang	

There are considerable differences between the variants. However, based on the criterion of mutual intelligibility they are considered to constitute one language, *Woisika*.

Although in earlier days, according to the stories that I have been told, contacts between different villages seem to have been continuously jeopardised by warfare, there must have been a sort of permanent relation between certain groups, as the people lived in exogamous patrilineal clans and the residence was predominantly patrilocal. Because of this the mother almost always belonged to a different village/clan and probably spoke a different variant.

Warfare may have caused isolation (which in turn may have promoted dialectal variation); on the other hand, because of exogamy the *Woisika* as a child was frequently exposed to other variants spoken by his mother, the wives of his father's brothers, or the wife of his own older brothers, and this must have made him familiar with other variants. This may explain why the mutual intelligibility between speakers of different variants is high. I did not find any trace of a preferential marriage system which could have limited the stock of brides available to certain variant groups.

The variant chosen for description here is the *Ateita* [α' tejta, α' tojta] variant (VI). My main informants originate from the villages of Manengeng and Maumang. The exact number of *Ateita* speakers is unknown but is estimated roughly at 500 speakers. Before the general descent to the plain (see Stokhof 1977:14), the variant under consideration was probably spoken in ± 15 villages, the number of inhabitants of which ranged from ± 15 to 50 individuals. See Appendix 4: sketch of the Maumang village before the descent.

1.3. MATERIALS

The materials upon which this paper is based were collected in the years 1974-1975 and 1977. During the first period the investigations were supported by the Netherlands Foundation for the Advancement of Tropical Research, *WOTRO*, (Grant W38-7) and sponsored by the *Lembaga Ilmu Pengetahuan Indonesia* (Jakarta) and the *Lembaga Bahasa* (later the National Language Centre, *Pusat Pembinaan dan Pengembangan Bahasa*, Jakarta).

Because of the number of *Woisika* speakers living in Kupang (approximately 80 individuals: 78 men, 2 women), Kupang was chosen as a base. Two informants lived in my house and this enabled me to make part of the recordings there. They accompanied me during the regular field-trips to Alor and assisted me in the analysis of the data after our return.

During the first period data were gathered on the linguistic situation in the Alor archipelago and an attempt was made at a first classification of the languages (Stokhof 1975).

As general information about the people whose language is going to be described and their culture is considered to be essential for a more complete understanding of that language, a short ethnographic sketch has been published with the assistance of the informants and a great number of older people from all over the Woisika area (Stokhof 1977).

In addition a fairly large number of utterances were collected and a first outline of the phonology and morphology was worked out. A score of short texts dealing with all kinds of topics were recorded, transcribed and analysed in co-operation with Andreas Asafa and especially Johan Laure (see 1.4.). After my return to Holland the data were further studied and classified but much remained unclear. Attempts to carry on a correspondence with the informants failed: two of them were sent to Timor Timur as primary school teachers and one went to Kalimantan Barat. In 1977 I had the good fortune to return to Indonesia, now on the staff of the Department of South-East Asian Languages and Cultures, University of Leiden, and attached to the National Centre for Language Development. During a brief stay in Kupang I was fortunate enough to persuade Mr L. Kamengmai to come and stay with me in Jakarta. We started to recheck all the data and in the course of this task (which is not finished yet) the present study and the accompanying text acquired its final form. This paper is written on the basis of the following materials:

- (1) Conversations, anecdotes, riddles and stories of various lengths, tape-recorded, transcribed, translated and interpreted with the assistance of the informants;
- (2) additional texts recorded by hand;
- (3) fieldnotes; and
- (4) several thousand words, phrases and sentences, mostly elicited but many inspired or suggested by the informants.

1.4. INFORMANTS

My main informants in Kupang were two male students who shared the same house with me. They were: Andreas Asafa, 20 years old, from the village of Manegeng (variant Ateita) and Markus Mailau, 22 years old, from the village of Maumang (variant Ateita). The information obtained from these two assistants was later discussed and completed by two other male students: Johan Laure, 27 years old, from Susuimang (variant Ateita) and Ruben Langasa, 22 years old, from Puiwela (variant Ateita).

The informants with whom I worked during the first period of my investigation often had great difficulty in concentrating. Normally a session did not take much longer than 45 minutes or so, but their attention and interest had often disappeared toward the middle of the interview. They were easily distracted and seemed much more interested in their future in Indonesian society than in their own culture and language. It was difficult to stimulate them and since their knowledge of the old traditions and their ability to tell stories were limited, only a few longer connected texts were obtained from them. Nevertheless they supplied valuable information on the language and culture of the Woisika. L.L. Kamengmai (now 20 years old), whom I already came to know in the last months of my stay in Kupang, also originated from Maumang. He appeared to be a very creative and alert informant, full of imagination and patience with his doubtlessly clumsy interrogator. He is one of the first Woisika whom I have met who really seems to be interested in his language and culture and, though less educated than his friends, he is more open-minded, shows a quick understanding and in addition is an indefatigable storyteller.

The Kupang informants went to primary school in Waimi for six years and then left for Kalabahi to go to secondary school for three to four years. In Kalabahi, and also later in Kupang, they lived together with other boys from the Woisika area. M. Mailau and A. Asafa arrived in Kupang in 1972 and J. Laure and R. Langasa followed in 1975. L. Kamengmai, who did not go to Kalabahi to receive secondary education, stayed in Maumang and Molpui until 1973 and then sailed for Kupang to go to the Sekolah Teknik for two years.

All the informants had been exposed to Indonesian, the official language of the Republic of Indonesia and the medium of instruction at school as well as the vehicle of communication in official, formal situations and in inter-ethnic contact. They were bilingual and they could read and write in Indonesian. Yet as far as I am able to judge at this stage of the investigation, their language still does not show much influence from Indonesian (nor from the local variant of Malay: Kupang Malay). Apart from the often inevitable loanwords - cultural innovations are almost always expressed in that language - their own language seems hardly to be influenced by the lingua franca.

Our language of communication was a mixture of Indonesian and Kupang Malay, and later, especially with Kamengmai, Woisika was used, provided the problems under discussion were not too complicated.

1.5. INDONESIAN

Officially Indonesian serves as a medium of instruction in all government primary schools. In the Woisika area, the Woisika language is used at lower administrative levels and there are many older people who do not know Indonesian. Some of them understand it but do not speak it. Many parents ignore the law prescribing seven years as the age for school entrance and do not enter their children until they are ten or twelve years old, or not at all. This is often due to practical factors: money, distance, lack of manpower at home, etc. Since the (more or less) forced descent of this mountain people to the resettlement area, the children are more easily exposed to Indonesian than in their ancestral villages high up in the mountains.

The number of bilinguals is increasing since the younger generation tends to go to school more regularly and in greater numbers than in former days and a relatively smaller number seem to leave after the first grades. Most children do not know Indonesian before they go to school - some know a few words only. The primary school teachers are from the Woisika area and though they are expected to use Indonesian as early as possible, they use Woisika in the first two grades. However, at an early stage they begin to introduce a certain amount of Indonesian and they gradually increase that amount during the year. As far as I know, all teachers use translation (from Woisika into Indonesian), repetition (of Indonesian utterances) and memorisation (of Indonesian songs, anecdotes, stories, etc.) as the sole method of language instruction. In the third grade Indonesian is used predominantly, Woisika being resorted to only in cases of difficulties. I have the impression that many teachers forbid the use of Woisika in the classrooms.

In Kupang among younger individuals who have already received a certain amount of education, e.g. secondary school pupils, conversation in two languages occurs on occasion. As far as I could ascertain, they do not switch from one language to the other but rather tend to intersperse their talk with lexical elements borrowed from Indonesian or Kupang Malay.

The Woisika attitude towards Indonesian is ambivalent. The language is identified with the government, especially at the *Kabupaten* and *Propinsi* level. It is then the language used by the non-Woisika people who have forced the Woisika to give up their ancestral homes, who forbid them to practise the familiar slash and burn technique or to hunt the wild pigs and deer in the mountains. On the other hand Indonesian is also linked with profession, education, prosperity and status (see Stokhof 1976). It opens the possibility of getting a job in the army,

police force or in the civil service. This factor definitely exerts a great influence on the decision to go to school and to learn Indonesian.

1.6. LITERACY

In its successful campaign for literacy and elementary education the Indonesian government for obvious reasons stresses the importance of the national language and does not show a strong inclination to develop orthographies for smaller languages, though literacy in local languages should be used as a starting-point for the learning of Indonesian. Written communication between older Woisika people is absent. The younger educated speakers correspond with each other in Indonesian or use the phonemically quite consistent orthography of Indonesian for their Woisika messages. In chapter 10. a proposal for an orthography is offered which is based on earlier work done by Langasa, Asafa, Laure and Stokhof in 1975.

2. METHODOLOGICAL PRELIMINARIES

2.1. A linguist confronted with a previously unknown language actually starts his investigation from the assumption that language is a code. So,

... there are always two facts immediately accessible for the inquirer: the utterance and the interpretation of it by a native. The interpretation depends on two things: the utterance (the input) and the set of rules applied to it (the code). Thus, knowing both utterances and interpretation, one can draw conclusions about the code. Any distinct change in an utterance that is accompanied by a change in the interpretation cogently points to a rule in the code.

(Ebeling 1960:13)

The view of language as a code is obviously a simplification of the facts. Of course, language is first and foremost a means of communication, a sign system which implies that its formal and semantic components are conventionalised to a high degree. But whereas in a code (and I do not mean here secondary codes based on language such as writing systems, morse, braille, etc.) a lack of explicitness or discreteness inevitably results in uninterpretability, this is not necessarily always so in language. On the other hand, language as an autonomous sign-system with a double articulation that cannot function without sharp demarcations is, in contradistinction to a code, in a continuous state of transition which yields fluctuations in the system. This has consequences for the semantic as well as for the formal correlates of its signs and consequently may produce misunderstanding between language users. Phenomena such as neutralisation, optionalities, joint features and doublets form

the proof that language is not always as discrete in demarcation of its units as codes are. Still, we may hold that since language is systematic, categorised and, in a sense, pre-established, i.e. (unconsciously) a priori agreed upon by its users, it functions as a code. It is the task of the linguist, as I see it, to ascertain as accurately as possible those elements which have functional value and which are or which seem to be invariant in the flux. I agree with Ebeling that this can only be done based on criterion of distinctiveness. Articulatory data and an informant to interpret them are prerequisites.

2.2. However, it is often difficult to find out what influences co-determine the reactions of the informant. Language does not stand on its own but is a vehicle of thought, part of culture and at the same time its main instrument of expression. The sometimes unbridgeable differences between fieldworker and informant may often interfere with the investigation. Only research that is carried out over a long period of time and with the same informants and an intensive knowledge of the culture and the people speaking the language which is to be described (a knowledge which must be obtained by participant observation as well as by more indirect methods such as library study) may remove some of the misunderstandings, but differences will always remain. The problems which arise from the fact that both linguist and informant are conditioned by their pertinent cultures, which organise human experience differently, should not be underestimated. Not to mention the different apportioning of the semantic continuum - complications often derive from a different orientation toward the facts, a dissimilar scheme of priorities. Trivialities, such as when a fieldworker thinks he has got a positive answer whereas it is in the negative, are of course quickly revealed. Woisika furnishes an illustrative example: the confirmation /'joU/ can usually be translated into English with 'yes' and the negative /'beInâ/ with 'no', but in answers to questions such as:

/a 'beI jâ 'pâsarmidahnâ?/³

'Didn't you go to the market?'

/'joU/ may mean 'no' and /'beInâ/ 'yes' depending on the attitude taken by the speaker.

Sometimes, however, an answer may be obtained which is given from a different point of view, seemingly unrelated to the problems posed, but inferred by the informant from the question and restated or transposed into his own concepts. Then it is difficult to trace it back or to place it in its own framework, if indeed we are aware of it at all. It goes without saying that in an interview a plain confirmation or negation of

a question never suffices, since we often do not know what we are asking (for).

Our observational adequacy may be endangered by other factors as well. The assumption that the informant has the same standard of accuracy as the researcher is often unwarranted. The exchange of information via dialogue or interview based on mutual reliability is not a specifically Western concept, but the assumption that both participants possess the same need for accuracy seems to me an ethnocentric Western idea.

The reason for the informant's different attitude towards accuracy may be manifold: the way in which the researcher behaves may have far-reaching effects on the person(s) he interviews. But there may be other factors as well: a general tendency to please, an inclination to agree easily with persons of higher status, the fear of losing face in acknowledging an earlier mistake or in showing ignorance, or haste to get back to daily activities. The often heard contention that the key informant with whom the inquirer has a long-term friendly contact may be more reliable only partly holds, since the native speaker is often inclined to identify himself to a certain extent with the interests and wishes of the researcher, and this inevitably results in coloured and one-sided information. Moreover, it should be borne in mind that there is also a difference between the linguist and the informant in their objectives: the former wants to get an insight into the language system, and this is obviously not the first aim of the latter.

Ambiguity and misinformation in (verbal) interaction between researcher and informant may be quite high and, worse, both may be unaware of it. Whether this will decrease or increase as soon as the former starts using the language under investigation during the sessions remains doubtful.

2.3. Apart from the extra-linguistic problems mentioned in the preceding paragraph, we must also be aware of the correction-mechanism which is demonstrable in each hearer. It often causes him to interpret the utterances offered to him automatically in a way which suits his expectation and/or language system best. During the search for distinctive features in Woisika it appeared that the informants, when confronted with an utterance *['apmi], assumed a realisation ['akmi] (compare /'akmi/ 'here').

This must be explained by the well-known fact that hearers (and we should not always preclude the investigator on the job, I am afraid) are information orientated and not sound orientated. In order to prevent this, informants were trained to listen during the tests to an utterance as if it was a proper name unknown to him or the name of a newly imported product (see Ebeling 1960).

Generally speaking this increased in the speakers their awareness of the sounds and often yielded unique solutions. However, it also happened that previously attested or artificial utterances were rejected during the interview but shortly thereafter pronounced in exactly the same way. For instance A.A. rejected [s^jɛŋ] as a possible manifestation of /seŋ/ 'money' (from Indonesian *sen*), but in his normal speech [s^jɛŋ] alternates with [sɛŋ]. In such instances both realisations were noted down and where necessary two different phonemic forms were listed. It goes without saying that the correction mechanism may or may not be operative in cases where utterances are erroneously received, i.e. not in accordance with the intention of the fieldworker - here again it is not always easy to detect this. On the other hand it also happened that a more educated speaker maintained the existence of a difference between two homophones since one of them was a loanword. Only by means of an identification test with a tape-recorder did it become clear that such a difference did not exist.

In most cases the informant reacted differently when a certain feature was replaced by another one (see par. 2.5.) say, when 'lower high' or 'high' were substituted for 'mid' as in [woj] 'stone' [wuj, wuj] 'moon'. Here a change in an utterance caused a change in the interpretation by the hearer, so we know that we are dealing with distinctive quality in sound. But in other instances he did not interpret the newly obtained utterances differently from the initial ones: e.g. ['wɔbɑ·, 'wubɑ·, 'wubɑ·] 'to make'.

Apart from obvious facultative variation it became clear in these cases that, though no change in interpretation was attested, we were dealing with phenomena pertaining to the code, e.g.:

- (1) neutralisation
- (2) doublets (as in /'wɔbɑ, 'wubɑ/)
- (3) optionalities
- (4) idiolectal and regional variations
- (5) affective forms
- (6) configurative features (boundary signals)

Nevertheless, despite all these possible complications, I am still convinced that there is no better method to establish the functional properties of sound and its units than by studying it under the aspect of distinctiveness, and this can only be carried out with the co-operation of informants. Their ability to identify texts as belonging to their own language, their positive and negative reaction to utterances previously obtained from them or others, their correction of mistakes in their own texts and their comment on those of others, and their ability

to divide the speech flow into separate units - all this makes them indispensable during all phases of the investigation.

2.4. It has become apparent in the literature that a natural segmentation of the speech flow into separate sound units does not exist and that there is no unambiguous correlation between the acoustic signal and perceptual segments. Consequently there is no invariance either at the physical level. But absence of separation in the signal does not necessarily imply absence of delimitation on the perceptual level. Since it cannot be denied that we perceive speech via the auditory system as a succession of distinct units, this segmentation habit is obviously a perceptual phenomenon. In fact it is difficult to understand how language could function as a code without discrete entities. It is here that the phoneme comes in as the link between the sound correlate and the semantic correlate of the linguistic sign. Phonetic features are unordered in time. They overlap those of adjacent sounds and do not begin or end simultaneously. Each feature may occur in the speech flow in hundreds of different arrangements; it is only a distinctive feature in a limited number of combinations. Those combinations are minimum sets which are auditorily ordered in time, i.e. concatenated in the speech flow. Their phonemic make-up differs from each other and this makes segmentation possible.

The informant and the linguist share the same neural system. Generally speaking they tend to segment and identify items in the signal in the same way, but this is modified by their different internal linguistic knowledge, their linguistic expectation pattern, which works as a set of phonological, morphological and syntactic cues for the recognition of linguistic forms. The linguist is well aware of this and establishes heuristically the differences between the informant's system and his own. The only way to find out what features there are and in which sets they are effective (relevant) is to link auditory segments with articulatory correlates. This is done by means of a functionality test. It is based on the hypothesis that our recognition of signalling elements in the sound stream is analytical and can be traced back to complexes of articulatory events. Now, this is not easy, as it is well known that a clear separation in the production of the signal is hardly demonstrable: speech sounds are produced by simultaneous gestures which do not yield a succession of nicely separated events but a continuous flow of sound complexes influencing each other progressively, regressively or both, as the case may be. So during the testing the linguist will inevitably produce and come across articulatorily complex, simultaneous

events, but on the basis of the informant's reactions he will be able to decide whether functionally they are simultaneities or successivities. Phy

even precedes the [j] in Dutch ['^ojüdas] '*Judas*'. A pronunciation with unrounded or even spread lips proves that it is not a relevant feature. Suppression of [^o] in [ü] or a pronunciation [±^o] would yield forms which could not be identified with the initial one. The same holds when [ü] and [j] are permuted: orderedness in time pertains to the successivity of phonemes. It does not preclude coarticulation of the features.

2.5. The phonemic analysis starts from stretches of speech sounds regarded by the informants as belonging to their language. Basing himself on their ability to recognise, identify and isolate (more or less) independent grammatical units (words), the investigator carries out a first segmentation of these stretches. For Woisika this procedure worked very well. Tests showed that nobody had any problem in mapping out the independent linguistic forms but, as might be expected, hardly anybody appeared able to identify the morphemes of which most units were composed.

In order to arrive at a correct delimitation and identification of phonemes, an inventarisation of the distinctive features has first to be made in all environments. We start with features and not with phonemes, since features are the smallest elements in the plane of expression whose presence or absence can be proved to have communicative value. Features are qualities; they exist only on the basis of directly observable oppositions. A phoneme being a minimum set of distinctive features which can be shown functionally to constitute a unit, it does not necessarily have a correlative counterpart: it is only after the investigation of the features that we are able to set up units in a reliable way. Every word is then provisionally divided into arbitrary segments of sound characterised by different features. Each of these features belongs to one of the dimensions that together constitute a multi-dimensional continuum which can be produced by the human speech organs. Every dimension in turn is viewed as a continuum and may be represented as passing by gradual change from one extreme point to the other. Examples of such dimensions are (in terms of articulatory phonetics):

labial → apical → dorsal, etc.

oral → nasalised → nasal

high → mid → low

front → central → back, etc.

The graduations may be more or less refined as the case may be. Each dimension is then examined separately.

Thus, in Woisika [t₁α₂·m₃] 'to cook' 1, 2 and 3 are part of the dimensions vcd. → vcl. and oral → nasal, 2 is part of the dimensions high → low, front → back and tense → lax, 1 and 3 pertain to apical → dorsal, etc.

Now to study the allophonic range of [α·] in the dimension high → low we gradually change the tongue height and confront the informant with the newly obtained forms. The same is done with the other features. It is the positive or negative reactions of the informants, which determine our conclusions. This functionality test is based on the supposition that

... certain oppositions exist in a given language. We take any sound of this language and let its sounds (not bothering whether they are single or complex) move along one dimension in both directions. Several things may happen. Either the artificial word we obtain is not recognizable as a possible form of the language or we get a word which native speakers will interpret as a different, though not necessarily occurring form. In the former case we have come outside the field of language sounds in the given language and find data for the distinction of speech sounds from non speech sounds in the given language, but not for the setting apart of the phonemes from each other. In the latter case we have discovered a relevant opposition. It may also happen that before reaching a distinctly different form we first get a sound complex which is uninterpretable because it may be as well the first as the second form and does not occur in normal speech.

(Ebeling 1960:28)

2.6. Since we do not restrict the investigation to the features attested in a certain environment but also take into account features which we are reasonably sure could occur in that same environment, we are able to determine very accurately which features are functional and where, and which are only positionally conditioned. Thus the test provides us with two kinds of oppositions:

- (1) oppositions which are operative in the language in the sense that the presence vs. absence of a feature or set of features has consequences for the interpretation by the informant (relevant features), and
- (2) oppositions which are discerned by the informant but which are not operative, i.e. without functional value (virtual oppositions).

For instance: In W. a substitution of the feature + voice for - voice in the first segment of a form like [tα·] 'on top of' yields [dα·] 'to carry on the head'. The replacement of [tα·], [dα·] by *[t^jα·], *[d^jα·], respectively, yields new forms which are not identified with the initial

forms nor do they have a semantic correlate of their own: $\pm P$ is a virtual feature and $+P$ vs. $-P$ is a virtual opposition. Consequently, we are also able to distinguish between: (a) incidental non-occurrence of (a) a feature or features (i.e. defective distribution), (b) systematic non-occurrence of a feature or features and (c) absence of an opposition (neutralisation, optionalities). An instance of (b) is the non-occurrence of $-voice$ in the nasals $/m, n, \eta/$ in W., though the voice correlation is attested elsewhere in the system, e.g. $/p/$ vs. $/b/$. The phonemes $/m, n, \eta/$ are opposed to their voiceless non-existent counterparts $*/M, N, \text{Ń}/$ and consequently relevantly voiced. The difference between (b) and (2) is that in (b) the opposition is attested elsewhere in the system, whereas in (2) $-P$ vs. $+P$ is nowhere valid.

2.7. Needless to say, a single relevant feature correlates with a complex set of articulatory events. The opposition $/p/$ vs. $/b/$ is often interpreted in terms of absence vs. presence of voice, but it is well known that the difference may be in the voice-onset time, relative duration of the closure/tenue, the relative intensity, the relative duration between the contiguous segments under investigation, or a combination of some or all these events together.

Moreover, the phonetic range of the sets of features varies widely, depending on factors such as individual realisation and speech tempo. Features which are registered as relevant features are often not realised according to their articulatory/auditory label. Dissimilar articulations may yield the same auditory impression. In most cases we are not able to be more explicit and we choose an easy cover term such as high, labial, etc. because our field results do not allow for a more detailed description. To avoid this kind of arbitrariness the sound functionality test is applied which is limited, but since we are working within the range of articulatory phonetics, as it is here that the phoneme demonstrably finds its correlates, I believe that a high degree of sophistication (instrumental investigations, etc.) in fact is unnecessary. Of course, much depends here on the ability of the investigator to produce the sound needed, but normally the test enables us to ascertain the relations between the phonetic events and to establish their communicative value. Features arrived at by means of the test are not merely easy cover terms but really functionally and at the same time furnish information about the optimal realisation of the phonemes.

In many languages difference in vowel quality can be described in terms of relative height, relative frontness or lip-rounding, and it often suffices to choose only one of them. For instance in the official variant of Indonesian, relative height distinguishes $[i]$ and $[e]$. But

sometimes we need more than one feature to characterise the distinction between the segments under investigation, e.g. in a case where we find

$\begin{bmatrix} -R \\ f \\ h \end{bmatrix}$ ([i]) vs. $\begin{bmatrix} +R \\ f \\ h \end{bmatrix}$ ([ü]) vs. $\begin{bmatrix} +R \\ b \\ h \end{bmatrix}$ ([u]) vs. $\begin{bmatrix} -R \\ b \\ h \end{bmatrix}$ ([w]), respectively.

Here [i] : [w] = [ü] : [u] = f : b and [i] : [ü] = [w] : [u] = -R : +R. Consequently we have to describe these oppositions in two-dimensional terms as /f, -R/ vs. /f, +R/ vs. /b, -R/ vs. /b, +R/.

If a segment allows for several realisations along two dimensions, e.g. [f → b] and [+R → -R], then the only way to establish which feature, or which combination of features, is relevant, is to suppress one of the features under investigation and to replace it by its counterpart.

Consequently, in a word with a high vowel $\begin{bmatrix} f \\ -R \end{bmatrix}$ we replace [-R] by [+R] which results in $\begin{bmatrix} f \\ +R \end{bmatrix}$ and we check this form with the informant. If (1) $\begin{bmatrix} f \\ +R \end{bmatrix}$ = $\begin{bmatrix} f \\ -R \end{bmatrix}$ then frontness is the only relevant feature and [i] is (high and) front. If $\begin{bmatrix} f \\ +R \end{bmatrix} \neq \begin{bmatrix} f \\ -R \end{bmatrix}$ we have found two segments in

relevant or virtual opposition. Compare the following instances:

if (2) [ü] = [u] then /+R/

(3) [ü] = [w] then /h/

(4) [u] = [i] then /h/

(5) [u] = [w] then /b/

(6) [i] = [w] then /-R/

In addition we may say that if

(7) [ü] = [i] and [w] = [u] then /f/ vs. /b/

(8) [ü] = [u] and [i] = [w] then /+R/ vs. /-R/

(9) [ü] = [w] and [i] = [u] then /+c/ vs. /-c/ and if

(10) [ü] = [i] = [w] but \neq [u] then $\begin{bmatrix} f, b \\ -R \end{bmatrix}$ vs. $\begin{bmatrix} +R \\ f, b \end{bmatrix}$

In 1, 2, 5 and 6 one feature suffices for the high segments. In 3 and 4 only /h/ remains since both opposite features of the respective dimensions are identified in the same phoneme. In 9 the same holds and probably a finer set of initial phonetic dimensions should be set up.

In 10 the latter segment is determined by the simultaneous presence of two relevant features: /+R, b/ and the former segment by the absence of either of them. /u/ must be /+R, b/ otherwise it will be identified by the informant with the former segment which may be either $\begin{bmatrix} -R \\ f \end{bmatrix}$, $\begin{bmatrix} +R \\ f \end{bmatrix}$

or $\begin{bmatrix} -R \\ b \end{bmatrix}$. Needless to say, not only the functional relation between

tongue advancement and roundness must be investigated but also that between other possible relevant features such as tense → lax, high → mid → low, etc.

2.8. A first inspection of the phonetic data suggested the following relevant dimensions for Woisika:

- (1) pulmonic egressive → glottalic egressive → glottalic ingressive;
- (2) high-level pitch → mid-level pitch → low-level pitch;
- (3) falling pitch → rising pitch;
- (4) greater duration (with respect to average duration) → average duration → shorter duration (with respect to average duration);
- (5) voice onset time: closed glottis → (partly) open and partly vibrating glottis (breathiness, creakiness) → open and vibrating glottis (voicedness) → open and quiescent glottis (voicelessness);
- (6) closed velic (oral) → (pre- or post) nasalisation → open velic (nasal);
- (7) obstructed → partly obstructed → unobstructed;
- (8) closure with oral release → with nasal release → with delayed oral release → unreleased;
- (9) bilabial position → labiodental position → dental position → alveolar position → palatal position → velar position → uvular position → glottal position;
- (10) roundedness → neutral position → spreadness;
- (11) trill → flap → tap (abrupt, partly unguided movement of the tongue)
- (12) open approximation → close approximation;
- (13) central → lateral;
- (14) tense articulation → lax articulation;
- (15) tongue position: front → central → back;
- (16) tongue height: lower-low → low → lower-mid → mid → higher-mid → lower-high → high → higher-high.

The functionality test yielded two types of features for Woisika:

- (1) binary features:

nasality (oral vs. nasal)

voice (vcl. vs. voiced)

obstruction (absence of obstruction vs. presence of obstruction)

continuousness (absence of cont. vs. presence of cont.)

lateralness (central vs. lateral)

'ballisticness' (absence vs. presence of abrupt tongue movement)

quantity (absence of duration vs. presence of duration)

roundness (unrounded vs. rounded)

tenseness (laxness vs. tenseness)

(2) multivalued features:

tongue height h(igh) vs. m(id) vs. l(ow)

tongue position f(ront) vs. c(entral) vs. b(ack)

place of articulation: L(abial) vs. D(apical) vs. P(alatal) vs.

G(velar) vs. g(lottal)

2.9. Phonemes are characterised by their linearity, i.e. their relevant orderedness in time and by the fact that they are minimum units. The formal correlates of the linguistic signs are composed of these very units: they are distinguished from each other by the different make-up of the features constituting the phonemes, by the different order of the phonemes or by both.

After the establishment of the distinctive features we set up these minimum units on the basis of the segmentation test (Ebeling 1960:70):

Suppose we have detected in a given form the distinctive features +A and +B: if we change +A into -A, or +B into -B, we obtain a different form. Now the question is: +A and +B belong to one phoneme /+A, +B .../ or two different phonemes /+A, .../ and /+B, .../?

If the latter solution is right, it is to be expected that the realization of the phoneme /+A, ...) is slightly colored by the feature +B of the contiguous phoneme, but this +B color is phonemically of no importance. But if the feature +B, as far as it appears simultaneously (i.e. within the same phoneme) with the feature +A, is irrelevant, it may be omitted and even be replaced by -B without causing a change in the identity of the form. Consequently, we must find out whether the word started from may be realized, as to the feature in question in either of the two following ways:
1/+A, -B, .../ /-A, +B, .../ ..., 2/-A, +B, .../ /+A, -B, .../

....

If both interpretations are excluded (because, if we tried to pronounce these features definitely in this order, the words we would produce would sound to native speakers as forms different from the one started from), then we have to admit that the word contains a phoneme /+A, +B, .../.

From what has been quoted above it is clear that there exists no obligatory order relation between the distinctive features of the phoneme: no feature occurs more than once in a phoneme and no redundant features are included. Consequently, relevant orderedness points to a biphonemic interpretation, e.g.:

[i̥s] ≠ [ʃ] ≠ [s̥i] then /js/ vs. /ʃ/ vs. /sj/.

Relevant unorderedness points to a monophonemic interpretation, e.g.:

[i̥s] = [ʃ]⁴ = [s̥i] + /ʃ/.

Irrelevant orderedness occurs when relevant order between two phonemes x and y attested in environment (p) is neutralised in an environment (q), e.g.:

(if $[\xi] = / \xi /$ exists)

in (p): $[s_i] \leftarrow /sj/$ vs. $[i_s] \leftarrow /js/$, but in (q) $/sj/ = /js/$.

Irrelevant unorderedness pertains to cases where the attested oppositions in an environment (p) between a and the phonemic sequence bc , both consisting of the same features x, y , but irrelevantly unordered in the former, and relevantly ordered in the latter, is neutralised in an environment (q), e.g.:

in (p): $[\xi] \leftarrow / \xi /$ vs. $[s_i] \leftarrow /sj/$

in (q): $/ \xi / = /sj/$

It goes without saying that if $[s_i] = [\xi]$ but $[i_s] \neq [\xi]$ and $[s_i] \neq [i_s]$, then $[s_i]$ and $[\xi]$ are interpreted as $/sj/$ vs. $[i_s] \leftarrow /js/$, and that if $[s_i] \neq [\xi]$ but $[i_s] = [\xi]$ and $[s_i] \neq [i_s]$ then $[i_s]$ and $[\xi]$ are interpreted as $/js/$ vs. $[s_i] \leftarrow /sj/$.

In other words, a phoneme $/ \xi /$ is only posited if its realisation $[\xi]$ is functionally different from a sequence $[s_i]$; if this is not the case the segmentation procedure yields $/sj/$.

Here a sound complex $[\xi]$ without a perceivable orderedness in its realisation is interpreted as a sequence of two phonemes. On the other hand a single phoneme may be actualised as a sequence of phones, e.g. Slovincian $/o/ \rightarrow [\text{ou}]$, Dutch $/e/ \rightarrow [e_i]$, etc.; linearity on the perceptual level does not always imply linearity on the linguistic level.

2.10. After the paradigmatic inventarisation of features found in arbitrary stretches of speech sound by means of the functionality test and the syntagmatic delimitation of minimum units by the segmentation test, the identification of the (sets of) features in different environments has to be carried out. Relevant features in different environments are identified on the basis of their functional value which is expressed in their substitution possibilities considering their positional constraints. If we encounter a set of, say, $/+Q, h, f, -R, -T/$ in an environment (x) and the same set in an environment (y) then both sets are considered to be identical. Consequently, sets consisting of different features are not, nor are sets composed of one or more feature(s) more (or less) than the set which they are compared with. In w. $/i/$ and $/j/$ share the same set of relevant features except for 'quantity', the presence or absence of which is the feature distinguishing them from each other. After a vowel word-finally or before a

consonant, however, this opposition is not operative and we are confronted with a set different from those of /i/ and /j/: the archiphoneme /I/. It should be borne in mind that here distinctiveness is the only criterion. The archiphoneme does not share in the quantity correlation: it may be realised as [j] as well as [i] but quantity is irrelevant to it and hence is different from /i/ → [i] (+Q) and /j/ → [j] (-Q). Identification becomes more complicated in the following instances:

(1) When in an environment (a) two features differentiate phoneme y from phoneme x, whereas in environment (b) only one feature keeps them apart. W. /u/ is opposed to /o/ (h vs. m), /â/ (-T vs. +T), vs. /i/ (b, R vs. f, -R) and to */w/ (+R vs. -R), */ü/ (b vs. f) in all environments except in the syllable before a non-back vowel, where b and f are in free variation. In /kul/ 'again' /u₁/ is distinctively /b, +R/, but in /su'e/ 'to come' /u₂/ is distinctively /+R/ only. Do /u₁/ and /u₂/ belong to the same phoneme? If there had been a set of features [ü] elsewhere, not in free variation with [u], then /ü/ and /u/ would have been phonemes neutralised before a non-back vowel. Here I identify them both as /u/, since it concerns a virtual opposition.

(2) When [a, b, c] are attested in environment (x) and [b, c, d] in environment (y). Now if we assume that [a, b, c, d] all belong to the same dimension, say (f) h → (f) l, then we identify [a] (x) with [b] (y), [b] (x) with [c] (y), [c] (x) with [d] (y), if [b] (y) = *[a] (y) and [c] (x) = *[d] (x). But if [b] (y) can be distinguished from an artificial *[a] (y) and the same holds for [c] (x) in relation to *[d] (x) then: /a/, /b/, /c/, /d/.

If [b] (y) ≠ *[a] (y) and [c] (x) = *[d] (x) then:

/a, b, c, d/ and /C/ (archiphoneme of /c/ and /d/ in (x)).

If [b] (y) = *[a] (y) and [c] (x) ≠ *[d] (x) then:

/a, b, c, d/ and /A/ (archiphoneme of /a/ and /b/ in (y)).

(3) In those instances where V1 and V2 are in complementary distribution before C1 and C2, respectively, often two different solutions are proposed:

(1) [C1 ~ C2] ← /C/, [V1] ← /V1/, [V2] ← /V2/ or

(2) [C1] ← /C1/, [C2] ← /C2/, [V1 ~ V2] ← /V/

For instance, Russian byt' 'to be' vs. b'it' 'to beat' would yield according to (1) /bit'/ vs. /b+t'/ and to (2): /bit'/ vs. /b'it'/.

Compare also Swedish: [ta:k] 'roof' ≠ [tak:]⁵ 'thanks'

(1) /taak/ 'roof' vs. /tak/ 'thanks' or

(2) /tak/ vs. /takk/

Both analyses seem unjustified since they are highly arbitrary. The functionality proof indicates which identification is the right one:

- (1) if $[t\alpha:k] = *[t\alpha:k:]$ and $*[tak] = [tak:]$
then /taak/ 'roof' vs. /tak/ 'thanks'
- (2) if $*[t\alpha:k:] = [tak:]$ and $*[tak] = [t\alpha:k]$
then /takk/ 'thanks' vs. /tak/ 'roof'
- (3) if $[t\alpha:k] \neq *[t\alpha:k:] \neq *[tak] \neq [tak:]$
then /taak/ vs. */taakk/ vs. */tak/ vs. /takk/
- (4) if $[t\alpha:k] \neq *[t\alpha:k:]$ and $*[tak] = [tak:]$ but $*[tak] \neq [t\alpha:k]$ and
 $[tak:] = *[t\alpha:k:]$ then /taak/ 'roof' vs. /tak/, /takk/ 'thanks'
- (5) if $*[tak] \neq [tak:]$ and $[t\alpha:k] = *[t\alpha:k:]$ but $[tak:] \neq *[t\alpha:k:]$ and
 $*[tak] = [t\alpha:k]$ then /takk/ 'thanks' vs. /taak/, /tak/ 'roof'

Commentary: (1), (2), (3) are self-explanatory. In (4) and (5) there occurs a phenomenon that Kortlandt (1972:148) calls joint features. It can be compared with the case mentioned in par. 2.7. example 10 where /u/ must be both back and rounded whereas the other phoneme may be either front, or unrounded or front and unrounded, or front and rounded. In that case the features involved characterise the same vocalic segment in the speech flow,

... but a situation where phonetic features characterizing successive elements in the speech flow jointly constitute a single relevant feature is easily conceivable. In that case, either feature is relevant or redundant depending on the other.

(Kortlandt 1972:148; emphasis mine, W.S.)

In (4) +Q(uality) in V and -Q in C in $[t\alpha:k]$ 'roof' together distinguish this form from 'thanks'. In the latter word either -Q in V ($[tak:] \sim *[tak]$) or +Q in C ($[tak:] \sim *[t\alpha:k:]$) are sufficient to keep it apart from $[t\alpha:k]$. In 'thanks' absence of quantity in V is relevant, and absence/presence of quantity in C is redundant in the first variant (/tak/), absence/presence of quantity in V is redundant and presence of quantity in C is relevant in the latter variant (/takk/). In (5) -Q in V and +Q in C together distinguish $[tak:]$ 'thanks' from 'roof'. In the latter word either +Q in V ($[t\alpha:k] \sim *[t\alpha:k:]$) or -Q in C ($*[tak] \sim [t\alpha:k]$) suffice to keep it apart from $[tak:]$.

In (4) [k] is in opposition with [k:] after [a:] not after [a], and [a] is opposed to [a:] before [k] but not before [k:], in (5) [k] vs. [k:] after [a] not after [a:] and [a] vs. [a:] before [k:] not before [k].

2.11. Neutralisation means that an opposition between two (or more) phonemes a, b in environment(s) (x), (y) is inoperative in environment (z) (see Stokhof 1975a:256-7). The substitution of a for b and vice versa in environment (z) does not yield a change in meaning. I would like to stress that neutralisation hinges entirely on the principle of distinctiveness. Tactical considerations do not play a role here. Consequently if word-finally we find [u, o, ɔ, a] in closed syllables and [u, o, a] in open syllables, we are not allowed to use the fact that [u, ɔ, a] occur before word-final [r] to establish a neutralisation between [ɔ] and [o] in closed syllables. Whether the archiphoneme /o/ has as its corresponding basic phonemes /o/ and /ɔ/, or /ɔ/ and /a/, should be checked with the functionality test.

In par. 2.9. *in fine* the neutralisation of order is briefly touched upon. Neutralisation between sets of two successive segments distinguished in certain positions by joint features is also conceivable though I am not familiar with any instance. Neutralisation between a phoneme and a cluster of phonemes is mentioned in the same paragraph.

2.12. Compare the following cases:

- (1) Dutch vee [feɪ, veɪ] 'cattle', but fee [feɪ] 'fairy' never *[veɪ]
- (2) French tête [tɛ:t, tɛt] 'head', but tette [tɛt] 'teat' never *[tɛ:t]
(Kortlandt 1972:155f.)

Based on instances such as mentioned here, Ebeling (1966) has proposed the term 'heavy phoneme' to indicate a phoneme which consists of basic distinctive features and, in addition, one or more optional distinctive features, in contradistinction to a basic phoneme which only consists of basic features.

The heaviness of a phoneme (or sequence of phonemes) is established by the following criteria: the suppression of the optional feature(s) in a heavy phoneme never leads to misinterpretation by the hearer. The result (basic form) is always accepted as identical with the initial (heavy) form. The converse procedure, i.e. the addition of an optional feature or features to a basic phoneme, in some instances yields a form which is interpreted as identical with the initial (basic) form.

In other cases, however, we may obtain a form different from the initial form, or a form which is not recognised as a possible realisation of the form started from. So, 'voice' is optional and /v/ is a heavy phoneme in (1); 'quantity' is optional, /ê/ is a heavy phoneme in (2).

Words borrowed from Kupang Malay with palatalised dentals show two different realisations in Woisika:

[d^jam, jam] K.M jam (but ['bajam] not *[d^j] Ind. bayem)
 ['d^juru, 'juru] K.M juru
 ['t^jukup, 'sukup] K.M cukup (but [sað.ŋ] not *[t^j])
 ['t^jɛlanɔ, 'sɛlanɔ] K.M celana, calana
 ['t^ji.nɔ, 'si.nɔ] K.M cina (but [si.n] not *[t^j])

Thus the sequence /tj/ is heavy as compared to /s/, with interceptedness and palatalisation as complex optional features which distinguish the former variant from the latter. [s], which is the only admissible consonant in the other words, e.g. [si.n], [sað.ŋ] is a basic phoneme. The same holds for [d^jam, jam]. Here the /d/ is an optimal phoneme: [d^jam] is the heavy form, [jam] the basic form.

As in the case with doublets where two or more different forms are considered as exemplifications of one and the same word, I opted for a description with two different phonemic forms: /djam/, /jam/ and /'tjina/, /'sina/, etc., and I shall present either of them as the case may be, i.e. according to the variant encountered in the given instance. In this way the description supplies us with the maximal amount of information. Until now I do not know why an informant opts for the heavy variant at one time and for the basic variant at another time: idiolectal, stylistic or social factors play a part here. Other examples are:

Ind. lihat [lihat- li^jat-] 'to see' vs. liat [lijat-] 'pliable'
 tujuh [tudjuh, tudju] 'seven' vs. tuju [tudju] 'direction'
 (/h/ is an optional phoneme, /tudjuh/ and /lihaT/ are heavy forms, /tudju/ and /liaT/ basic forms)

In Wolsika /a/ in the sequence /âa/ is optional in final position.

/'mâa/ and /'mâ/ both mean 'already left' but
 /mâ/ also means 'to leave'

I distinguish between optional phonemes and facultative phonemes. Suppression or insertion/addition of a facultative phoneme does not yield a different linguistic form. For instance in Indonesian there exists a phoneme /j/ which, however, is facultative after /n/ before /tj/ or /dj/:

/bonjtjis, bontjis/ 'beans'
 /djanjdji, djandji/ 'to make an appointment'

N.B. The establishment of a facultative /j/ in this position is the direct consequence of the fact that there is no functional difference between a pronunciation where 'dental articulation' and 'palatality' are unordered ([ñ]) and one where they are ordered with respect to each other ([n^j, nj]), see Stokhof 1975.

Whereas in most cases the heavy form shows the extra (optional) feature and the basic form its absence, the converse also occurs:

Slovincian [pjìɛs, pxjìɛs] (heavy variant: absence of [x] 'dog')
but [pxjìɛl] never *[pjìɛl] 'flea' (gen.plur.)

The absence of [x] is optional, [pxjìɛs] is the basic form, [pjìɛs] the heavy one (see Stokhof 1973).

It may happen that the basic variant of a form x may coincide with the only admissible realisation of a form y:

Ind. /liat/ 'to see' (alongside with /lihaT/) vs. /liat/ 'pliable'
Woisika /jà/ 'stool' (alongside /gâ/ heavy form) vs. /jà/ 'to go'
(see par. 3.1.3.)

It is also possible to encounter a triple set of variants in which the heavy variant forms the basic variant of another heavy variant:

/'nijam/ is heavy in relation to /'niam/ but basic in relation to
/'nidjam/ 'our (excl.) watch' (see par. 3.1.5. and par. 3.1.4.)

In /'migawâl/ (heavy variant) 'he returns' /g/ is a heavy phoneme. It can be replaced by /j/ (basic phoneme): /'mijawâl/ (basic variant). This form in turn is in explicit speech 'heavy' in relation to /'miawâl/ which occurs in normal, fast speech. Here it coincides with the only admissible realisation of 'you return'.

Another kind of triplet is furnished by the following case: /se'jara/ 'history' is the basic variant in relation to /se'djara/ (where /d/ is optional) as well as in relation with /se'gara/ 'history' where /g/ is heavy. The same holds for /'jala/, /'djala/ (/d/ is optional), and /'gala/ 'net'.

In the most common cases of optionalities the optional element is deleted; this unambiguously results in one and the same basic form. The heavy phoneme /g/ in Woisika, however, yields basic phonemes according to strict distributional rules: /g ~ w/ before rounded vowels and /g ~ j/ before unrounded vowels; see par. 3.1.3.⁶

3. WOISIKA SOUND SYSTEM

3.0. The Woisika sound system consists of 16 consonant phonemes and 12 vowel phonemes. In addition there are five archiphonemes (see par. 3.1. and par. 3.4.).

3.1. CONSONANT PHONEMES

TABLE 1

		Supraglottal				glottal
		labial	apical	palatal	velar	
non-continuant	occlusives	p	t		k	
		P	T		K	
		b	d		g	
	tap / trill		r			
continuant	nasals	m	n		ŋ	
	orals	fricatives				
		f	s			
		lateral				
		centrals		j		h
	approximants	w	l			

Table of consonant phonemes based on physiological speech parameters which consist of places of articulation with various manners of articulation superimposed. Archiphonemes are indicated by capitals.

3.1.1. The classification of the consonants according to their distinctive features involves a two-way distinction between continuants and non-continuant conditioned by the absence/presence of an interruption of the air stream. The non-continuant are subdivided on the basis of the articulators into three series: labials /p, b/, apicals /t, d, r/ and velars /k, g/. Their modes of articulation provide us with another opposition: /p, b, t, d, k, g/ vs. /r/. The first are obstruents, i.e. they require a complete obstruction (occlusion) of the vocal tract at a certain point. /r/ is either a tap, the realisation of which requires a rapid movement of the tip of the tongue to tap against its articulation point and which involves a momentary interruption of the airstream, or a trill, i.e. a repetition of the tap articulation. In contradistinction to the occlusives the ballistic movement of the articulator is the essential feature of the sound. According to the state of the glottis a distinction is attested between voiced occlusives (/b, d, g/), i.e. phonemes whose articulation involves vibration of the vocal cords as a whole, and voiceless occlusives (/p, t, k/) where this is not the case. The continuants fall into two main sets: orals (/f, s, l, w, j, h/) and nasals (/m, n, ŋ/). Orals are phonemes whose realisation involves an egressive airstream through the oral cavity whereas nasals are

characterised by the passing of the airstream through the nasal cavity only. Nasals show approximately the same points of articulation as the non-continuants: labial /m/, apical /n/ and velar /ŋ/. The orals comprise fricatives (/f, s/) and approximants (/l, w, j, h/). /f, s/ are orals with local friction in the vocal tract, so their realisation requires a partial obstruction at a certain place or places whereas the approximants do not require this. In the fricatives there is an opposition labial vs. apical. The approximants are subdivided into centrals and lateral, depending on whether the airstream movement passes over the centre of the tongue or over its side(s): /w, j, h/ and /l/, respectively. Centrals are classified according to whether the actualisation involves features at the source of the phonation only (glottal) or not (supraglottal): /h/ vs. /w, j/, respectively. Finally the latter two phonemes are opposed as regards their points of articulation: labial /w/ vs. palatal /j/.

Co-articulation in instances such as: ['wita] 'to carry on the back in a bag attached to a headband', ['juru] 'clerk', shows that the degree of liprounding is phonemically irrelevant. /p, t, k/ and /m, n, ŋ/ are released (i.e. involving separation of the articulators) in initial and intervocal position. In final position before a pause /P, T, K/ and their nasal counterparts show exploded as well as unexploded realisations in free variation. Close transition often occurs in clusters with an archiphoneme as the first component: /'aPtâ/ 'on top of the fish' → ['ap-tâ], and instances containing occlusive plus nasal such as: /'lukman/ placename → ['luk-mãŋ]. Complete closure with homorganic fricative release appears in [ts]. It occurs across morpheme boundaries ([C''C]) in authentic W. words, e.g. [wa'lɛtsi] 'to carry'. In two instances it has been attested within morpheme boundaries: ['latsi] 'to rise', ['pentsil] 'pencil' from Indonesian pensil. A hyphen is written in the phonetic transcription after a consonant to indicate that it is unreleased, which in clusters automatically designates a closed transition. In the case of two similar segments it implies a relatively longer closure/tenue. In the latter two instances it is not always indicated in the transcription. Prolongation of segments is attested across morpheme boundaries only, except for a few place names and the name of a moko which I consider monomorphemic until I find counter-evidence, ([bal-lɑ.], ['lɛl-lɑ], ['kɔt-tɑ]). The following prolongations have been encountered up to now:

- (1) vcl. occlusives: [p-p], [t-t], [k-k]
- (2) lateral: [l-l]
- (3) non-velar nasals [m-m], [n-n]
- (4) centrals

in the following positions:

- (1) word finally before a pause:

/puK/ 'big'	/su'paK/ 'to scratch'
/aT/ 'firewood'	/wa'leT/ 'to carry'
/aP/ 'fish'	/tâP/ 'to close'

- (2) before a voiceless obstruent:

/wa'leTta/, /wa'leTsi/, from /wa'leT/
 /'tâPpa/, /'tâPsi/, from /tâP/
 /su'paKka/, /su'paKsi/, /su'paKtanoUna/, from /su'paK/

- (3) before a voiced obstruent:

/wa'leTdî/
 /'taPdî/
 /su'paKdî/

/p, t, k/ are relevantly voiceless in clusters with /m, n, r, l, w/ though /b, d, g/ have not been attested in those positions.

/'akmi/ 'here' not */'agmi/
 /wa'letma/ 'carried' not */wa'ledma/
 /'apmâ/ 'cooked fish' not */'abmâ/

The other consonant phonemes, i.e. the continuants and /r/ lack a voiceless or voiced counterpart and thus do not form correlative pairs with +voice or -voice as the sole distinguishing feature. This does not imply that they are voice-irrelevant. Sound functionality tests showed that /m, n, ŋ/ are distinctively voiced. A voiceless actualisation of /m/ in the word /'tama/ 'sea, ocean' was rejected as an acceptable realisation. The same holds true for /r, n, l, ŋ, w, j/ and *mutatis mutandis* for /f, s/. The continuant /h/ is voice-irrelevant before a voiceless obstruent, a voiced obstruent, word finally and between vowels. Elsewhere it is distinctively voiceless. In the above mentioned cases we are dealing with what I have called systematic non-occurrence of a feature or features (par. 2.6.).

3.1.3. Heavy /g/

/g/ is a heavy phoneme with interceptedness and absence of palatalisation or velarisation, respectively, as a complex optional feature: /j/ and /w/ are its basic counterparts.

/g ~ w/ occurs before rounded vowels, [g ~ j] before unrounded vowels:

/'gaorama ~ 'waorama/ 'it happened'
 /'gula ~ 'wula/ 'sugar' < Ind. gula

/'guru ~ 'wuru/ 'teacher' < Ind. guru
 /'goT ~ 'woT/ 'gutter' < Ind. got
 /'angur ~ 'aŋwur/ 'wine' < Ind. anggur
 but /'wun/ not */'gun/ 'pan'
 /'wobâ/ not */'gobâ/ 'to do'

/'gêI ~ 'jêI/ 'road'
 /'gente ~ 'jente/ 'presently'
 /'gaenda ~ 'jaenda/ 'to reply'
 /'gila ~ jila/ 'crazy'
 /gâ ~ jâ/ 'stool'
 but /jâ/ 'to go' not */'gâ/
 /'jêmô/ 'dont' not */'gêmô/

Forms in /j/ before back vowels and in /w/ before non-back vowels do not show optionalities:

/'jokê/ 'turtle' not */'gokê/
 /'jobon/ 'wooden tool used for digging' not */'gobon/
 /'juru/ 'secretary, clerk' not */'guru/
 /'wita/ 'to carry on the back in a bag attached to a headband'
 not */'gita/
 /wae/ 'mango' not */'gae/

3.1.4. The sequences /tj/ and /dj/ exist only in recent borrowings from Kupang Malay. Older people and those among the younger without a modern education usually assimilate these sounds as /s/ and /j/, respectively:

K.Mal. jam W [jam] + /jam/ 'watch, o'clock'
 juru W ['juru] + /'juru/ 'clerk'
 jumat W ['jumat] + /'juma/ 'Friday'
 carmin W ['sermin, 'sarmin] + /'sermin, 'sarmin/ 'mirror'
 lonceng W ['lonsen] + /'lonsen/ 'watch'
 cina W ['si.na] + /'sina/ 'Chinese'
 calana W [sc'lanα, sa'lanα] + /se'lanα, sa'lanα/ 'trousers'
 cukup W ['sukup] + /'sukuP/ 'enough, sufficient'
 dacing W ['dasɪŋ] + /'dasɪŋ/ 'a weight'

There is a tendency in the younger, already educated speakers, to maintain the Indonesian pronunciation in more or less formal situations: at school, at the office, etc. but to drop it or to use it in alternation with /s/ and /j/ forms elsewhere. As could be expected, this sometimes results in new (hypercorrect) forms such as:

/'pentjil, 'penTsil/ along with /'pensil/ from Ind. pensil

In the younger educated speakers the forms with /tj/, /dj/ are heavy in relation to those in /s/, /j/, respectively. In ordinary speech the whole sequence /dj/ is optional:

/'sidjam/ or /'siam/ are both perfectly acceptable exemplifications of '*our watch*', the latter form being homonymous with '*our breast*'.

In deliberate speech only /d/ is optional:

/'sidjam, 'sijam/ vs. /'siam/ '*our breast*'

N.B. The Kupang Malay proper names: Franse, Fransje (for females), France (for men only) are both adapted as ['franɛ] by the older W. speakers. The younger educated generation uses the Malay forms but in unguarded moments they may refer to a boy as /'franɛ/, and as may be more embarrassing sometimes, address a Kupang girl as /'frantjɛ/.

3.1.5. Optional /j/ and /w/

In normal speech (n.sp.) a glide between [i, i.] and a non-front vocoid or between [u, u.] and a non-high vocoid is not functional, being a characteristic of the preceding segment. It is not represented in the phonemic transcription:

- (1a) ['niɲɑ.] /'niâ/ '*our stool*'
- (2a) ['niɲɑ.] /'niâ/ '*our rice*'
- (3a) ['miɲawɑ.l] /'miawâ/ '*he returns*'
- (4a) ['miɲawɑ.l] /'miawâ/ '*you return*'
- (5a) ['nuɲɑ.] /'nuâ/ '*thing*'
- (6a) [su'ɥɛ] /su'e/ '*to come*'
- (7a) ['fauɲɑ] /'faua/ '*hammered*'

In slower, more deliberate speech (sl.sp.) the presence of a glide is no longer predictable on phonetic grounds; its absence or presence is distinctive:

- (1b) ['niɲɑ.] /'niɲâ/ '*our stool*'
- (2b) ['niɲɑ., 'niɑ.] /'niâ/ '*our rice*'
- (3b) ['miɲawɑ.l] /'miɲawâ/ '*he returns*'
- (4b) ['miɲawɑ.l, 'miawɑ.l] /'miawâ/ '*you return*'
- (5b) ['nuɲɑ., 'nuɑ.] /'nuâ/ '*thing*'
- (6b) [su'ɥɛ, su'ɛ] /su'e/ '*to come*'
- (7b) ['fauwɑ, 'faɲwɑ] /'faUwa/ '*hammered*' (vs. /'fawa/ '*the manner*')

In (2b), (4b), (5b), (6b) the gliding element is very slightly audible if at all, in the other cases it is very clear and its presence is obligatory. Suppression in (1b) for instance would yield a different form, to wit (2b). The explicit variants (1b), (3b), (7b) are characterised by the presence of an element /j/ or /w/, whereas (1a), (3a), (7a) are not:

/'nijâ, 'mijawâl, 'fauwa/ are heavy variants (h.v.),
/'miâ, 'miawâl, 'faua/ are the basic variants (b.v.).

In (7) the case is complicated by the fact that neutralisation occurs in sl.sp. before [w], (see 7b), but not in (7a). More precisely, neutralisation of the quantity correlation plus the presence of /w/ are optional in (7b). Compare the following similar instances with /i/ and /Ij/:

(n.sp.) ['nii̥ja.] 'we(excl.) go back' + /'niiâ/ (b.v.)
(sl.sp.) ['nii̥ja., 'nijja.] 'we(excl.) go back' + /'niIjâ/ (h.v.)
(n.sp.) ['ni̥ja.] 'to look for us(excl.)' + /'niâ/ (b.v.)
(sl.sp.) ['ni̥ja.] 'to look for us(excl.)' + /'ni̥jâ/ (h.v.)
(n.sp.) ['ai̥ja.] 'taken' + /'aia/ (b.v.)
(sl.sp.) ['ai̥ja, 'ajja] 'taken' + /'aiIja/ (h.v.) vs. /'aja/ 'the bunch'

Principally, a glide in this analysis is written only when it is distinctive. If we are confronted with a non-functional difference between phonetically different but positionally identical sounds, or sequences of sounds, i.e. free variation, then there is obviously no need to distinguish between the variant forms. On the other hand the fact that in explicit speech [j] and [w] cannot be deleted without affecting the meaning of the word points to their distinctiveness. Finally, I would like to call attention to cases which are almost the same as that of examples (3) and (4), but have an extra variant form: /ni'aoma/ has two meanings: (a) 'we are born', (b) 'we have given birth to you' → [ni̥'jao.m̩a] (n.sp.) and [ni̥'jao.m̩a, ni̥'ao.m̩a] (sl.sp.) vs. /ni'gaoma ~ ni'waoma/ 'we have given birth to him/her, them',⁷ etc. (for /g ~ w/ alternation see par. 3.1.3.). Some informants however sometimes use /ni'jaoma/ (→ [ni̥'jao.m̩a] (sl.sp.)) for 'we have given birth to him'. This /j/ is unpredictable; there is no rule which allows for a /g ~ j/ or /w ~ j/ alternation here. With the speakers who use the /j/ form, this form, again, is heavy in relation to /ni'aoma/ which they of course also use and interpret as 'we have given birth to him' (→ [ni̥'jao.m̩a] (n.sp.)) as well as 'we are born' and 'we have given birth to you'.

So /j/ may or may not alternate with /g/: /jâ ~ gâ/ 'stool' but /jâ/ not */gâ/ 'to go'; may or may not alternate with /dj/: /jam ~ djam/ but /jân/ 'to come down' not */djân/; is optional between a high front vowel and non high front vowel: /'sijâ/ ~ /'siâ/ 'our(incl.) stool' and is neutralised with /i/ in /I/ see par. 3.4.4.

I refrain from a morphophonemic notation here and refer to the dictionary for a full account of the pertinent heavy forms.

3.1.6. Interchange of /d/ and /r/

These two phonemes are opposed to each other except intervocalically in intramorphemic position where /d/ is a heavy phoneme in relation to /r/:

/ta'dâ ~ ta'râ/ 'bean' k.o. *Phaseolus*
 /ki'diŋ ~ ki'riŋ/ 'small'
 /ka'del ~ ka'rel/ 'to split'
 /ta'foda ~ ta'fora/ 'iron'
 /'sidaŋ ~ 'siraŋ/ 'meeting'
 /ku'da ~ ku'ra/ 'horse'
 /ka'dî ~ ka'rî/ 'house'
 /ku'doŋ ~ ku'roŋ/ 'gong'
 /'idika ~ 'irika/ 'younger, junior'
 /a'dubâI ~ a'rubâI/ 'much, many'

Forms which do not allow an alternation in /d/ are e.g.:

/'karel/ 'Charles'
 /pa'roŋ/ 'mud; marsh'
 /pa'rân/ k.o. banana: "pisang beranga"
 /'mera/ 'table'
 /kô'rel/ 'to drill'
 /'boran/ 'very'
 /ta'ruka/ 'strong'
 /'pîran/ 'place to stay'
 /pa'ran/ 'wet'

/d/ and /r/ are quite limited in distribution. /r/ does not occur word-initially where /d/ is common, except for a few loans in the speech of R. and A.

R /'romo/ 'priest', R /'rupia/ rupiah, R /'roti/ 'bread', which are rejected by the other informants. They add /a/ before the /r/: /a'romo/, /a'rupia/, /a'roti/.⁸ Word-finally /r/ is encountered in a few borrowings such as /'alor/ 'Alor', /'libur/ 'holiday' and in emphatic expressions like /ar!/ (see par. 7.). /d/ is neutralised in final position with

/t/ in /T/. Nevertheless /r/ is in opposition with /d/ and /T/, respectively:

/dol/ 'valley' vs. */rol/
 /dum/ 'child' vs. */rum/
 /'alor/ 'Alor' vs. */aloT/
 */nâr/ vs. /nâT/ 'with us'

In the remaining positions the opposition is obviously valid but many doublets occur:

/'nedol/ 'my valley' (not /r/), but /'nedum ~ 'nerum/ 'my child',
 /'sideI/ 'our piece of split bamboo to prop up tuber plants' (not /r/),
 but /'sideI ~ 'sireI/ 'below us', /'salde/ 'child!' (voc.) (never /r/),
 but /su'aŋda ~ su'aŋra/ 'come', /'nosaIdi/ 'to wipe me clean' (never /r/),
 /wa'landa/ 'Holland, Dutch' (never /r/), /'tâdi ~ 'târî/ 'to sleep', etc.

Tests with informants proved that there is consensus about those /d/ forms which cannot be replaced by /r/ forms, but they revealed a great difference in the use and acceptance of substitution of /d/ for /r/. This does not seem to be dialectally or sociolectally conditioned:

A, M, J, L /a'râ ~ a'dâ/ but R /a'râ/ (not /d/) 'pumpkin'
 M /'nekoran ~ 'nekodan/ but L, R, A /'nekoran/ (not /d/) 'my chest'
 M, A, L /pu'ra ~ pu'da/ but R /pu'ra/ (not */d/) 'hole'
 A, J /'tûra ~ 'tûda/ but L /'tûra/ (not */d/) 'the same'
 J /ka'rura ~ ka'dura ~ ka'ruda ~ ka'duda/ but A, R */ka'duda/ 'to cough'
 I write them in accordance with their pronunciation in given instances.

3.1.7. /b/

[bʔ] I am still in doubt about the physiological aspects of this sound. It has been labelled as a voiced egressive pharynx air sound since my own hearing and imitation gave me the impression that there is probably a sort of slight leakage from the lungs through the glottis to vibrate the vocal cords; this, however, does not destroy the (partial) pressure caused by the upward movement of the larynx. One of the problematic points is that this raising of the larynx is not often perceptible. The lips are relatively more tightly pressed together and its explosion is more forceful as compared to that of [b] and [p]. This relatively stronger articulation could probably also be described in terms of fortis (for [bʔ]) and lenis (for [b]).

With A [bʔ] (in free variation with [b, ɱb, ɤ] before back vowels) is found sporadically in closed monosyllabic words in isolation. L shows

[ɸ] in free variation with [b] in the same environment. In citation forms, immediately following pause the occlusive series is sometimes slightly aspirated with A. In L's speech it occurs too, but after word final occlusives in very deliberately pronounced words and after word initial [k] before an unrounded vowel; it is rare.

3.2. CONSONANT PHONEMES: REALISATIONS

3.2.1. Labials

3.2.1.1. /p/ vcl. bilabial occlusive →

- 1) A [p^h ~ p] in [#-V]:
 [p^hɛ, pɛ] 'pig' /pe/
 [p^ha'teɪ, pa'teɪ] 'maize' /pa'teɪ/
- 2) [p- ~ p] in [-N]:
 ['ap-mə, 'apmə] 'cooked fish' /'apmâ/
- 3) [p] everywhere else:
 [pɛ] 'pig' /pe/
 [pãŋ] 'that' /paŋ/
 ['apɑ] 'this' /'apa/
 [bu'kɑ·pitɪŋ] name of a village /bu'kâpitɪŋ/
 [i'pɔma] 'expert' /i'poma/
 [puk-] 'big, great' /puK/

3.2.1.2. /b/ vcd. bilabial occlusive →

- 1) A [bʔ ~ ^mb ~ ɸ ~ b] in [#-VbC#]:
 [bʔuk-, ^mbuk-, ɸuk-, buk-] 'hill' /buK/
 [bʔɔŋ-, ^mbɔŋ-, ɸɔŋ-, bɔŋ-] 'tree' /boŋ/
- 2) A [b^h ~ b] in [#-Vc]:
 A [b^hɑ·, bɑ·] 'fence' /bâ/
- 3) [b] everywhere else:
 [ta'bɪp-] 'fan' /ta'biP/
 [buk-] 'hill' /buK/
 [bɔŋ-] 'tree' /boŋ/
 [bɑ·j] 'big' /'bâɪ/
 [ɑ'bɛ·] 'husk, chaff' /a'bê/
 [wa'letsibo] 'to carry and' /wa'leTsibo/

3.2.1.3. /P/ bilabial occlusive (archiphoneme of /p/ and /b/) →

- 1) [p- ~ p] in [-#/Ovl.]:
 [ap-, ap] 'fish' /aP/

[sɔp-, sɔp] 'soup' /soP/
 ['ap-tα·, 'aptα·] 'on the fish' /'aPtâ/
 ['wɔtα·p-pα, 'wɔtα·ppα] 'closed' /'wɔtâPpa/

2) [p] in [-F]:

['wɔtα·psi] 'to close' /'wɔtâPsi/

3) [b ~ b ~ p] in [-Ovd.]:

['ab-dα, 'abdα, 'apdα] 'to become (a) fish' /'aPda/

3.2.1.4. /m/ bilabial nasal →

1) [m- ~ m] in [-#/L]:

[tα·m-, tα·m] 'to cook' /tâm/
 [dum-, dum] 'child' /tâm/
 ['dum-bɔ, 'dumbɔ] 'the child who' /'dumbɔ/
 ['dum-pα, 'dumpa] 'this child' /'dumpa/
 ['tα·m-mα, 'tα·mma] 'cooked' /'tâmma/

2) [m] everywhere else:

[mα·] 'to go' /mâ/
 ['α·mα·] 'cooked rice' /'âmâ/
 ['letmɔj] name of a person /'letmoI/
 ['yelami] 'her husband' /'yelami/
 ['minɔk-] 'once' /'minoK/
 ['anmante] 'but' /'anmante/
 ['jetɔumsi] 'they spoke with each other' /'jetoUmsi/

3.2.1.5. /f/ vel. labial fricative → [f] in all positions:

['fufɛ] 'to be coming down' /'fufe/
 ['αfaj] 'gully' /'afaI/
 ['wɔfufun] 'to hold carefully' /'wɔfufun/
 ['finiŋwα·j] 'evening' (from ±18.00 until ±22.00) /'finiŋwâI/
 [ta'fɛ] 'to poke, to stab' /ta'fe/

3.2.1.6. /w/ labial approximant (ʁ /g/) → [w] in all positions:

[wα·] 'egg' /wâ/
 ['welãŋ] 'dew' /'welaŋ/
 ['newα] 'my foot, leg' /'newa/
 [wũŋ] 'cooking pot' /wuŋ/
 ['tawu] 'rattan' + prom.m. /'tawu/
 ['migawα·lmante] 'went home but' /'migawâlmante/
 ['wɔjtα·] 'on the stone' /'woItâ/

['woukɔ] 'his mother' /'woUko/
 [a'wi.] 'fish-hook' /a'wî/
 [a'wila] 'full' /a'wila/

(basic phoneme in relation to heavy phoneme /g/) → [w] (see par. 3.1.3.)

['siwuru] 'our teacher' /'siwuru (v 'siguru)/
 ['wao.ramɔ] 'born' /'waorama (v 'gaorama)/
 ['aŋwɜr] 'wine' /'aŋwɜr (v 'aŋgur)/

3.2.2. Apicals

3.2.2.1. /t/ vcl. apical occlusive →

1) [t̪ ~ t ~ t̪ ~ t] in [-N]:

['lɛt̪-mɔj, 'lɛt-mɔj, 'lɛt̪mɔj, 'lɛtmɔj] proper name /'lɛtmoI/
 [wa'lɛt̪-mɔ, wa'lɛt-mɔ, wa'lɛt̪mɔ, wa'lɛtma] 'carried' /wa'lɛtma/

2) [t̪ ~ t] everywhere else:

[t̪i., ti.] 'mouse' /t̪î/
 ['t̪ao.mãŋ, 'tao.mãŋ] 'crazy, peculiar' /'taomaŋ/
 [t̪aẽ.ŋ-, taẽ.ŋ-] 'we differ' /taeŋ/
 [t̪ẽŋ-, tẽŋ-] 'our eyes' /teŋ/
 [t̪ɔn-, tɔn-] 'jackfruit' /ton/
 ['wɛt̪ɛj, 'wɛtɛj] 'bamboo container for carrying water' /'wɛteI/
 ['waɬu, 'watu] 'day, o'clock' /'watu/
 [i't̪un-, i'tun-] 'late afternoon' /i'tun/
 ['wɔ.di.hjɛ.tɛ] 'do not hunt but' /'wɔdîhjête/

3.2.2.2. /d/ vcd. apical occlusive →

1) A [ᵈd ~ ɖ ~ d] in [#-VbC#]:

A [ᵈdɔl, ɖɔl, dɔl] 'valley' /dɔl/

2) [ɖ ~ d] in all positions:

[ɖi., di.] 'to place' /dî/
 [ɖa., da.] 'to carry on the head' /dâ/
 [ɖej, dej] 'piece of split bamboo to prop up tuber plants' /'deI/
 [ɖɔl, dɔl] 'valley' /dɔl/
 ['midɔŋ, 'midɔŋ] 'to feel warm' /'midoUn/
 ['t̪ɔɖɔksina., 'todɔksina.] 'don't move' /'todoKsinâ/
 ['aɖba.jɖa, 'aɖba.jda] 'it is pouring' /'aIbâIda/

3.2.2.3. /T/ apical occlusive (archiphoneme of /t/ and /d/) →

1) [t̪ ~ ɰ̪ ~ t̪ ~ t ~ t̪ ~ t] in [-#]:

[aʔ-, aʔ-, aʔ ~ at- ~ at] 'firewood' /aT/

[neʔ-, neʔ-, neʔ ~ neʔ- ~ neʔ] 'I' /neT/

2) [ʔ- ~ ʔ ~ t- ~ t] in [-Ovl.]:

['aʔ-ka.u, 'aʔka.y, 'at-ka.u, 'atka.y] 'charcoal' /'aTkâU/

[wa'leʔ-ta, wa'leʔta, wa'let-ta, wa'letta] 'carried' /wa'leTta/

3) [ʔ ~ t] in [-F]:

[wa'leʔsilouna, wa'letsilouna] 'to carry so' /wa'leTsilouna/

['laʔsɪŋ, 'latsɪŋ] 'to stand' /'laTsiŋ/

['leʔfa., 'letfa.] proper name /'leTfâ/

4) [d- ~ d- ~ d ~ d ~ ʔ ~ t] in [-Ovd.]:

['nid-be., 'nid-be., 'nidbe., 'niʔbe., 'nitbe.] 'we too' /'niTbê/

[ni'ja.d-da, ni'ja.d-da, ni'ja.d-da, ni'ja.dda, ni'ja.tda,

ni'ja.tda] 'to go to us(excl.), to be with us' /ni'âTda/

['led-dε, 'led-dε, 'ledde, 'letde, 'leʔde, 'letde!] vocative of Letmoi (proper name) /'leTde!/

3.2.2.4. /n/ apical nasal →

1) [ŋ- ~ ŋ ~ n- ~ n] in [-#/D]:

[aŋ-, aŋ, an-, an] 'in this way, so' /an/

[bi'leŋ-, bi'leŋ, bi'len-, bi'len] 'to write' /bi'len/

[bi'leŋ-ʔa, bi'leŋʔa, bi'len-ta, bi'lenta] 'letter' /bi'lenta/

['aŋ-ŋa, 'aŋŋa, 'an-na, 'anna] 'and then' /'anna/

2) [ŋ ~ n] everywhere else:

[ŋil, nil] 'we(excl.)' /nil/

[ŋal, nal] 'I' /nal/

['aŋŋaŋouŋa, 'antanouŋa] 'in this way, so' /'antanoUna/

[ta'ŋel, ta'nel] 'to cry' /ta'nel/

3.2.2.5. /r/ vcd. apical trill/tap → [r ~ R] in all positions:

[ga'rejda, ga'Rejda] 'to wait (for him)' /ga'reIda/

[a'rupiʔa, a'Rupiʔa] 'rupiah' /a'rupia/

[ka'ruda, ka'Ruda] 'to cough' /ka'ruda/

A ['ra.ku, 'Ra.ku]⁹ 'young pumpkin' /'râku/

[ka'ri., ka'Ri.] 'house' /ka'rî/

3.2.2.6. /s/ vcl. apical fricative → (ʃ /tʃ/)

1) [s^j ~ s] in [-ŷmf] (two instances attested):

['nes^jɛŋ, 'nesɛŋ] 'my money' /'nesen/

[na's^jɛŋ, na'sɛŋ] 'my ribcage' /na'sen/

2) [ɣ ~ s] everywhere else:

- [ɣil, sil] 'we(incl.)' /sil/
 [ɣɔ.j, sɔ.j] 'to ask for' /'sôI/
 [na'ɣa., na'sa.] 'my waist' /na'sâ/
 ['lɔmɣi, 'lɔmsi] 'to speak' /'lɔmsi/
 ['ejɣiŋ-, 'ejsin-] 'to ask' /'eIsin/
 [ɣu.l, su.l] 'trap' /sûl/

(basic phoneme in relation to the heavy phoneme sequence /tj/ (in loans only)) → [ɣ ~ s] (see par. 3.1.4.)

- ['si.na, 'si.na] 'Chinese' /'sîna (~ 'tjîna)/
 ['sermin, 'sermin] 'mirror' /'sermin (~ 'tjermin)/
 ['ɣalɔn, 'salɔn] 'candidate' /'salon (~ 'tjalon)/

3.2.2.7. /l/ lateral →

1) [l ~ l ~ l'] in [Vt-]:

- [ki.l, ki.l, ki.l'] 'quiet' /kîl/
 [su.l, su.l, su.l'] 'trap' /sûl/

2) [l ~ l] everywhere else:

- [na'wel, na'wel] 'I wash myself' /na'wel/
 ['wɔpiləh, 'wɔpiləh] 'to peel something' /'wɔpiləh/
 ['lujfa, 'lujfa] 'to twist off' /'luIfa/
 ['lɔm, lɔm] 'to speak' /lɔm/
 ['ba.ɣlǎŋ, 'ba.ɣlǎŋ] 'Tuesday' /'baUlaŋ/
 ['kɔlkɔlɔŋa., 'kɔlkɔlɔŋa.] 'much, very' /'kɔlkɔlɔnâ/

3.2.3. Palatal /j/ → [j] in all positions (≠ /g/, ≠ /dj/):

- [ja.] 'to go' /jâ/
 [ni'ja.] 'we(excl.) go' /ni'jâ/
 ['niija., 'niija.] 'we(excl.) go back' /'niIjâ/
 ['nija.] 'we came down' /'niijâ/
 ['ni.ja.] 'to go and look for us' /'niijâ/
 ['jɔkɛ.] 'turtle' /'jokê/
 ['sijɔkɛ.] 'our(incl.)' /'sijokê/
 ['waji.] 'leprosy' /'wajî/

(basic phoneme in relation to the heavy phoneme /g/ in [Vnon-r]) → [j]
 (see par. 3.1.3.)

- [jɛŋ] 'his, her, etc. eye' /jɛŋ (~ gɛŋ)/
 [ja.] 'stool' /jâ (~ gâ)/
 ['nija.] 'our(excl.) stool' /'niijâ (~ 'nigâ)/
 ['mijawɔ.l] 'he, she, etc. goes back' /'mijawâ (~ 'migawâ)/

(basic phoneme in relation to the heavy phoneme sequence /dj/ (in loans only)) → [j] (see par. 3.1.4.)

[jam] 'watch' /jam (˜ djam)/
 ['juru] 'clerk' /'juru (˜ 'djuru)/
 ['nijuru] 'our(excl.) clerk' /'nijuru (˜ 'nidjuru)/
 [se'jara] 'history' /se'jara (˜ se'djara)/¹⁰

3.2.4. Velars

3.2.4.1. /k/ vcl. velar occlusive →

1) [k ˜ q ˜ q^x] in [-Vnon-f]:

[kɔ., qɔ., q^xɔ.] duration marker /kô/
 A ['sajkɔj, 'sajqɔj, 'sajq^xɔj] a kind of lizard /'saikoI/
 ['na.kɑ, 'na.qɑ, 'na.q^xɑ] 'lift me' /'nâka/
 [ga'ku.t-, ga'qu.t-, ga'q^xu.t-] 'to stab' /ga'kuT/

2) [k- ˜ k] in [-N]:

['luk-mǣŋ, 'lukmǣŋ] name of village /'lukmaŋ/
 ['ak-mi, 'akmi] 'here' /'akmi/

3) [k] everywhere else:

['mukunĩŋ] 'kind of evil spirit' /'mukuniŋ/
 ['lajkɔŋ] 'small' /'laiKon/
 ['wojsika] name of a village /'woIsika/
 [fu'lakwuj] 'period from 12 January until 11 February' /fu'lakwuI/
 ['kae.tɑ] 'crooked, bent (e.g. of stick)' /'kaeta/
 ['ketketda] 'to make noises' /'keTkeTda/
 ['kǣe.ŋqɔ.] 'paralysed' /'kaen̄kô/

3.2.4.2. /g/ vcd. velar occlusive. Heavy phoneme in relation to /w/ and /j/ in /-Vr/ and /-Vunr./, respectively (see par. 3.1.3.) →

1) [g ˜ ɣ ˜ G] in [V-Vc]:

['wɔgawɑ.ɪ, 'wɔɣawɑ.ɪ, 'wɔGawɑ.ɪ] 'to give back' /'wogawâɪ
 (˜ 'wojawâɪ)/
 ['wɔgaka, 'wɔɣaq^xɑ, 'wɔɣɑqɑ] 'to open (it)' /'wogaka (˜ 'wojaka)/
 ['miɣawɑ.ɪ, 'miɣawɑ.ɪ, 'miGawɑ.ɪ] 'he goes back' /'migawâɪ
 (˜ 'mijawâɪ)/

2) [g ˜ G ˜ Gʸ] in [-Vc]:

['gaga, 'GaGa, 'GʸαGʸα] 'crow' /'gaga (˜ 'jaja)/

3) [g ˜ g^j] in [-Vunr]:

[gẽŋ, g^jẽŋ] 'his eye' /geŋ (˜ jeŋ)/

['gaẽ·ŋɔ, 'gʲaẽ·ŋɔ] 'to reciprocate' /'gaɛnda (ʷ 'jaɛnda)/
 ['gɛdum, 'gʲɛdum] 'his child' /'gedum (ʷ 'jedum)/
 ['gila, 'gʲila] 'crazy' /'gila (ʷ 'jila)/

4) [g ~ gʷ] ~ L[ɣ] in [-Vr]:

[gɔt-, gʷɔt-, ɣɔt-] 'gutter' /goT (ʷ woT)/
 ['gao·ramɔ, 'gʷao·ramɔ] 'born' /'gaorama (ʷ 'waorama)/
 ['gula, 'gʷula] 'sugar' /'gula (ʷ 'wula)/
 L [gɔ·j, gʷɔ·j, ɣɔ·j] 'through, via' /'gôI (ʷ 'wôI)/

3.2.4.3. /K/ velar occlusive. Archiphoneme of /k/ and /g/ →

1) L [k- ~ k ~ kʰ] in [-#]:

L [tak-, tak, takʰ] 'to run' /taK/

2) [k- ~ k] in [-#/Ovl]:

[tak-, tak] 'to run' /taK/
 ['aŋsi pɔ'tak-ta, 'aŋsi pɔ'takta] place name /'aŋsi pɔ'taKta/
 ['tɔ-k-tanoŋkãŋ, 'tɔ-ktanoŋkãŋ] 'probably already cut' /'tâKtanoŋkãŋ/
 ['tak-ka, 'takka] 'ran' /'taKka/

3) [k] in [-F]:

[ga'taksi] 'see him' /ga'taksi/
 [mak'sut-] 'aim, intention' /maK'suT/

4) [g- ~ g ~ k] in [-Ovd.]:

['lugbɛl, 'lug-bɛl, 'lukbɛl] 'bird' Turnix suscitator Suscitator
 (Gmel.) /'luKbɛl/
 [ma'rug-dɔ, ma'rugɔ, ma'rukɔ] 'to be short' /ma'ruKɔ/
 ['kig-damɔ, 'kigɔ, 'kikdamɔ] 'to be in bloom' /'kiKdamɔ/
 ['ɔg-ganin, 'ɔgganin, 'ɔkganin] 'the day after tomorrow' /'oKganin/
 ['sag-dɔ, 'sagɔ, 'sakɔ] 'to have passed away' /'saKɔ/

3.2.4.4. /ŋ/ velar nasal →

1) [ŋ ~ ŋ] in [Vnonf-Vnon-f]:

['ãŋɔ, 'ãŋɔ] 'that' /'aŋɔ/
 ['ɔŋɔj, 'ɔŋɔj] 'through that place' /'oŋɔI/

2) [ŋ- ~ ŋ] in [-#/G]:

[kaŋ-, kaŋ] 'good' /kaŋ/
 ['diŋ-kɔ, 'diŋkɔ] 'loose (of seed)' /'diŋkɔ/
 ['aŋ-gur, 'aŋgur] 'wine' /'aŋgur/

3) [ŋ] everywhere else:

['piŋɔ] 'the plate' /'piŋɔ/
 [wa'letɪŋɔ] 'carry!' /wa'letɪŋɔ/

3.2.5. /h/ glottal →

1) [h ~ h̥ ~ x] in [-#]:

- ['auh, 'au^{h̥}, 'aux] *'deer'* /'aU^{h̥}/
 ['nɛ·nih, 'nɛ·ni^{h̥}, 'nɛ·nix] *'to wait for me'* /'nênih/
 ['iiⁱ·α·h, 'iiⁱ·α·h̥, 'iiⁱ·α·x] *'you eat (pl.)'* /'iiâh/

2) [h ~ x] in [-Ov1/F]:

- ['kɑ·hta, 'kɑ·xta] *'pounded'* /'kâhta/
 ['kɑ·hsa, 'kɑ·xsa] *'pounding'* /'kâhsa/

3) [h ~ γ ~ x] in [-Ovd/N]:

- ['mɑ·hbo, 'mɑ·γbo, 'mɑ·xbo] *'to go and'* /'mâhbo/
 ['nɛahda, 'nɛayda, 'nɛaxda] *'almost near me'* /'neahda/
 ['kɔhmal, 'kɔγmal, 'kɔxmal] place name /'kohmal/

4) [H ~ h] in [Vc-Vc]:

- ['αHa, 'αha] *'and'* /'aha/

5) [h] everywhere else:

- [hak-] *'rights'* /haK/
 ['hɔ̃ŋhɔ̃ŋda] *'to double up with laughter'* /'hoŋhoŋda/
 ['ɛbiɛ·hje·] *'do not be afraid'* /'ɛbiehje/

3.2.6. Phoneme Sequences

Ø plus /j/ (3.2.6.1.); archiphoneme plus corresponding phoneme (3.2.6.2.); two identical phonemes (3.2.6.3.).

3.2.6.1. /tj/ marginal heavy sequence in relation to /s/ (in loans only) → [t^j]:

- ['t^jɛrmin] *'mirror'* /'tjɛrmin (~ 'sermin)/
 ['t^jɛlana] *'trousers'* /'tjelana (~ 'selana)/
 ['jant^jɛ] *'John'* /'jantje (~ 'janse)/

/dj/ marginal heavy phoneme sequence in relation to /j/ (in loans only) → [d^j]:

- [d^jam] *'watch'* /djam (~ jam)/
 ['d^juma] *'Friday'* /djuma (~ 'juma)/
 [sɛ'd^jara] *'history'* /se'djara (~ sejara)/
 ['d^juru] *'clerk'* /'djuru (~ 'juru)/

/sj/ marginal heavy phoneme sequence in relation to /s/ (in loans only):

- ['frans^jɛ] proper name /fransje (~ 'franse)/

3.2.6.2. /Pp/ → [p-p ~ pp]

['aP-pα, 'appa] 'this fish' /'aPpa/
 ['tα·p-pα, 'tα·ppα] 'closed' /'tâPpa/

/Tt/ → [t-t ~ tt]

['wɔt-tɛ, 'wɔttɛ] 'the roof first' /'woTte/
 ['bat-tα, 'battα] 'chiselled' /'baTta/

/Kk/ → [k-k ~ kk]

['kɔk-kα, 'kɔkka] 'fallen down (of trees)' /'koKka/
 [su'pak-kα, su'pakka] 'scraped, scratched' /su'paKka/

/Ij/ → [ij ~ jj] in [V-C/#]:

['aijα, 'ajjα] 'taken' /'aIja/
 ['yeijα·, 'jejjα·] 'he goes back' /'jeIjâ/

/Uw/ → [uw ~ ŷw] in [V-C/#]:

['fauwa, 'faŷwa] 'hammered' /'faUwa/
 ['ba·uwa, 'ba·ŷwa] 'pounded (esp. of nuts)' /'baUwa/

3.2.6.3. /l/ → [l-l ~ ll]

[sũ'lulla, sũ'llul-lα] 'urinated' /su'lulla/
 [ga'wel-lα, ga'wellα] 'he washed' /ga'wella/

/nn/ → [n-n ~ nn]

[bi'len-nα, bi'lenna] 'written' /bi'lenna/

/mm/ → [m-m ~ mm]

['tα·m-mα, 'tα·mma] 'boiled' /'tâmma/

3.3. CONSONANT PHONEMES: OPPOSITIONS

3.3.1. Labials

3.3.1.1. /p/ vcl. labial stop

1) vcl. vs. vcd.

/p/ vs. /b/ /puk/ 'big' vs. /buk/ 'island, hill'

2) non-continuant vs. continuant

/p/ vs. /f/ /fe/ 'to go down' vs. /pe/ 'pig'
 /w/ /'nepula/ 'this behind of mine' vs. /'newula/ 'my sugar'
 /m/ /me/ 'to come' vs. /pe/ 'pig'

3) labial vs. apical

/p/ vs. /t/ /pe/ 'pig' vs. /te/ 'to ascend'
 /d/ /de/ 'cave' vs. /pe/ 'pig'
 /r/ /'nera/ 'I' vs. /'nepa/ 'my father'

/p/ vs. /n/ /ga'nâI/ 'among them' vs. /ga'pâI/ 'his side'
 /s/ /'siâ/ 'our rice' vs. /'piâ/ 'different'
 /l/ /'ala/ 'you' vs. /'apa/ 'this'

4) labial vs. palatal

/p/ vs. /j/ /'pânte/ 'to kill first' vs. /'jânte/ 'come down here first'
 /pal/ 'that particular' vs. /jal/ 'he'

5) labial vs. velar

/p/ vs. /k/ /pî/ k.o. mango mangifera indica L. (?) vs. /kî/ 'skewer'
 /g/ /'paorama/ 'to have calmed down (of current)' vs.
 /'gaorama/ 'happened'
 /ŋ/ /'apa/ 'this' vs. /'aŋa/ 'that'

6) labial vs. glottal

/p/ vs. /h/ /'apa/ 'this' vs. /'aha/ 'then, and'

7) /Pp/ /'apa/ 'this' vs. /'aPpa/ 'that fish'

3.3.1.2. /b/ vcd. labial stop

1) vcl. vs. vcd.

/b/ vs. /p/ see 3.3.1.1.

2) non-continuant vs. continuant

/b/ vs. /f/ /bal/ 'price' vs. /fal/ 'to bind'
 /w/ /bal/ 'price' vs. /wal/ 'to deposit'
 /'nebula/ 'this piece of mine' vs. /'newula/ 'my sugar'
 /m/ /bal/ 'price' vs. /mal/ 'tasty'

3) labial vs. apical

/b/ vs. /t/ /buK/ 'island' vs. /tuK/ 'a piece (of wood, food)'
 /d/ /buh/ 'to lift up' vs. /duh/ 'to crawl (of babies)'
 /r/ /a'bâ/ 'bark' vs. /a'râ/ 'pumpkin'
 /n/ /'nenâ/ 'my belongings' vs. /'nebâ/ 'my fence'
 /s/ /a'sâ/ 'Caladium bicolor, Vent.' vs. /a'bâ/ 'bark'
 /l/ /'laUŋ/ 'wild' vs. /'baUŋ/ 'to smoulder'

4) labial vs. palatal

/b/ vs. /j/ /'bânte/ 'read first' vs. /'jânte/ 'to come down first'
 /bal/ 'price' vs. /jal/ 'he'
 /'sibâ/ 'our fence' vs. /'sijâ/ 'our beras'

5) labial vs. velar

/b/ vs. /k/ /'baI/ 'wall' vs. /'kaI/ 'hurrah, to cheer'
 /g/ /'baI/ 'wall' vs. /'gaI/ 'bunch (e.g. of areca nuts)'
 /ŋ/ */'aba/ vs. /'aŋa/ 'that'

6) labial vs. glottal

/b/ vs. /h/ /'baI/ 'wall' vs. /'haI/ 'cry to chase away animals'

3.3.1.3. /P/ labial stop

1) non-continuant vs. continuant

/P/ vs. /m/ /'neaP/ 'my fish' vs. /'neam/ 'my breast'
 /f/ -
 /w/ -
 /U/ /aP/ 'fish' vs. /'aU/ 'pounder'

2) labial vs. apical

/P/ vs. /r/ /aP/ 'fish' vs. /ar/ k.o. exclamation
 /n/ /aP/ 'fish' vs. /an/ 'so, in this way'
 /s/ /tâP/ 'lid' vs. /tâs/ 'bag'
 /l/ /aP/ 'fish' vs. /al/ 'you'
 /t/ -
 /T/ /tâP/ 'lid' vs. /tâT/ 'with us'

3) labial vs. palatal

/P/ vs. /I/ /aP/ 'fish' vs. /'aI/ 'to take'

4) labial vs. velar

/P/ vs. /ŋ/ /aP/ 'fish' vs. /aŋ/ 'that'
 /K/ /'wotoP/ 'to girdle' vs. /'wotoK ('wopel)/ 'to be
 angry with s.o.'

5) labial vs. glottal

/P/ vs. /h/ /aP/ 'fish' vs. /ah/ 'faeces'

3.3.1.4. /m/ vcd. labial nasal

1) continuant vs. non-continuant

/m/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /P/ see 3.3.1.3.

2) nasal vs. oral

/m/ vs. /f/ /me/ 'to come' vs. /fe/ 'to go down'
 /w/ /me/ 'to come' vs. /we/ 'to go'
 /U/ /am/ 'breast' vs. /'aU/ 'pounder'

3) labial vs. apical

- /m/ vs. /t/ /me/ 'to come' vs. /te/ 'to go up'
 /d/ /mâ/ 'to go' vs. /dâ/ 'to carry on the head'
 /r/ /am/ 'breast' vs. /ar/ k.o. exclamation
 /n/ /me/ 'to come' vs. /ne/ 'to drink'
 /s/ /me/ 'to come' vs. /se/ 'to come'
 /l/ /am/ 'breast' vs. /al/ 'you'
 /T/ /am/ 'breast' vs. /aT/ 'firewood'

4) labial vs. palatal

- /m/ vs. /j/ /ja/ 'to go' vs. /ma/ 'to go, to leave'
 /jâ/ 'stool' vs. /mâ/ 'to go, to leave'
 /I/ /am/ 'breast' vs. /aI/ 'to take'

5) labial vs. velar

- /m/ vs. /k/ /'maU/ 'cat' vs. /'kaU/ k.o. iron arrow
 /g/ /mal/ 'tasty' vs. /gal/ 'he'
 /ŋ/ /am/ 'breast' vs. /aŋ/ 'that'
 /K/ /lam/ 'man' vs. /laK/ 'language'

6) labial vs. glottal

- /m/ vs. /h/ /am/ 'breast' vs. /ah/ 'faeces'

7) /m/ vs. /mm/ /'tama/ 'sea' vs. /'tâmma/ 'cooked'

3.3.1.5. /U/ labial approximant

1) labial vs. apical

- /U/ vs. /T/ /'maU/ 'cat' vs. /maT/ 'to be painful'
 /'sâUtâ/ 'on top of the waterfall' vs. /'saTta/
 'peeled, sharpened'
 /t/ -
 /d/ -
 /r/ -
 /s/ /'mâU/ 'who' vs. /mâs/ 'gold, money'
 /l/ /'maU/ 'cat' vs. /mal/ 'tasty'
 /n/ /'aU/ 'pounder' vs. /an/ 'in this way, so'

2) central vs. stop

- /U/ vs. /p/ see 3.3.1.3.

3) central vs. nasal

- /U/ vs. /m/ see 3.3.1.4.

4) central vs. fricative

- /U/ vs. /f/ -

5) labial vs. palatal

/U/ vs. /j/ -

/I/ /'maUta/ village name vs. /'maIta/ 'dancing place'

6) labial vs. velar

/U/ vs. /k/ -

/g/ -

/ŋ/ /'mâU/ 'who?' vs. /mân/ 'who?'

/K/ /'taU/ 'rotten' vs. /taK/ 'to run'

/'baU/ 'tree' Hibiscus tiliaceus vs. /'baK/ 'sheath'

7) labial vs. glottal

/U/ vs. /h/ /'aU/ 'pounder' vs. /ah/ 'faeces'

3.3.1.6. /f/ vcl. labial fricative

1) continuant vs. non-continuant

see 3.3.1.1. and 3.3.1.2.

2) nasal vs. fricative

see 3.3.1.4.

3) fricative vs. central

/f/ vs. /w/ /fal/ 'to bind' vs. /wal/ 'to place'

/U/ -

4) labial vs. apical

/f/ vs. /t/ /fâ/ see Stokhof 1973:23 vs. /tâ/ 'on top of'

/d/ /fâ/ see ibidem vs. /dâ/ 'to carry on the head'

/r/ /a'fâ/ 'you on your own' vs. /a'râ/ 'pumpkin'

/n/ /'sife/ 'we go down' vs. /'sine/ 'we drink'

/s/ /fâ/ vs. /sâ/ 'tackle for catching shrimps'

/l/ /fâh/ 'to look for' vs. /lâh/ k.o. grain, "botok"

(Foxtail millet?)

/T/ -

5) fricative vs. palatal

/f/ vs. /j/ /fâ/ vs. /jâ/ 'to go'

/fâ/ vs. /jâ/ 'stool'

6) labial vs. velar

/f/ vs. /k/ /'faU/ 'hammer' vs. /'kaU/ k.o. iron arrow

/g/ /fal/ 'to bind' vs. /gal/ 'he'

/ŋ/ */'nêfa/ vs. /'nêŋa/ 'it's me who'

7) labial vs. glottal

/f/ vs. /h/ /fa/ 'go down' vs. /ha/ interjection

3.3.1.7. /w/ labial approximant

1) central vs. stop

see 3.3.1.1., 3.3.1.2.

2) central vs. nasal

see 3.3.1.4.

3) central vs. fricative

see 3.3.1.6.

4) central vs. central

/w/ vs. /u/ see 3.6.4.

5) labial vs. apical

/w/ vs. /t/ /wâ/ 'egg' vs. /tâ/ 'on top of'

/d/ /wâ/ 'egg' vs. /dâ/ 'to carry on the head'

/r/ /'newa/ 'my leg' vs. /'nera/ 'I'

/n/ /wâ/ 'my leg' vs. /nâ/ 'no!'

/s/ /wâ/ 'my leg' vs. /sâ/ 'tackle for catching shrimps'

/l/ /wae/ 'mango' vs. /lae/ 'top, end'

/T/ -

6) labial vs. palatal

/w/ vs. /j/ /'weTbê/ '(the) place too' vs. /'jeTbê/ 'he too'

/wâ/ 'egg' vs. /jâ/ 'stool'

/I/ -

7) labial vs. velar

/w/ vs. /k/ /wô/ 'to follow' vs. /kô/ 'continuously'

/ŋ/ /'newa/ 'my foot' vs. /'neŋa/ 'my eye'

/g/ /wal/ 'to place' vs. /gal/ 'he'

/K/ -

8) labial vs. glottal

/w/ vs. /h/ /'fawak/ 'this hammer' vs. /'fahak/ 'because it is swollen'

9) /w/ vs. /Uw/ /'fawa/ 'the hammer' vs. /'faUwa/ 'hammered'

3.3.2. Apicals

3.3.2.1. /t/ vcl. dental stop

1) vcl. vs. vcd.

/t/ vs. /d/ /tâ/ 'on top of' vs. /dâ/ 'to carry on the head'

2) stop vs. trill

/t/ vs. /r/ /a'ruŋ/ 'dust, soil' vs. /a'tuŋ/ 'you do not have anything with you'

3) non-continuant vs. continuant

- /t/ vs. /n/ /'tedum/ '(our) children' vs. /'nedum/ 'my child'
 /s/ /tâ/ 'on top of' vs. /sâ/ 'tackle for catching shrimps'
 /tâI/ 'female genitals' vs. /sâI/ 'sleeping place, bed'
 /l/ /tãŋ/ 'to come up' vs. /lãŋ/ 'new settlement'

4) apical vs. labial

- /t/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /m/ see 3.3.1.4.
 /f/ see 3.3.1.6.
 /w/ see 3.3.1.7.
 /P/ -

5) apical vs. palatal

- /t/ vs. /j/ /tâ/ 'on top of' vs. /jâ/ 'to go'
 /tâ/ 'on top of' vs. /jâ/ 'stool'

6) apical vs. velar

- /t/ vs. /k/ /tî/ 'mouse' vs. /kî/ 'skewer'
 /g/ /ga'buh/ 'to carry him' vs. /ta'buh/ 'to carry us'
 /ŋ/ /'oto/ 'car' vs. /'ono/ 'to be over there'
 /K/ -

7) apical vs. glottal

- /t/ vs. /h/ /'bôta/ 'to roast (maize, etc.)' vs. /'bôha/ 'to start growing (of plants)'

8) /t/ vs. /Tt/

- /'wote/ 'is present but' vs. /'woTte/ 'the roof first'
 /'bata/ 'beam' vs. /'baTta/ 'chiselled'
 J/'meta/ k.o. tuberous plant "ubi gatal" vs. /'meTta/ 'taken'

3.3.2.2. /d/ vcd. dental stop

1) vcd. vs. vcl.

- /d/ vs. /t/ see 3.3.2.1.

2) stop vs. trill

- /d/ vs. /r/ /'nideI/ 'my piece of split bamboo to prop up tuber plants' vs. /'nereI/ 'below me'

3) non-continuant vs. continuant

- /d/ vs. /n/ /doK/ 'to move' vs. /noK/ 'one, a'
 /s/ /dâ/ 'to carry on the head' vs. /sâ/ 'tackle for catching shrimps'

/d/ vs. /l/ /dâ/ 'to carry on the head' vs. /lâ/ 'bamboo ladder
for collecting honey'

4) apical vs. labial

/d/ vs. /p/ see 3.3.1.1.
/b/ see 3.3.1.2.
/m/ see 3.3.1.4.
/f/ see 3.3.1.6.
/w/ see 3.3.1.7.
/P/ see 3.3.1.3.
/U/ see 3.3.1.5.

5) apical vs. palatal

/d/ vs. /j/ /dâ/ 'to carry on the head' vs. /jâ/ 'to go'
/dâ/ 'to carry on the head' vs. /jâ/ 'stool'

6) apical vs. velar

/d/ vs. /k/ /dî/ 'to place' vs. /kî/ 'skewer'
/g/ /dâ/ 'to carry on the head' vs. /gâ/ 'stool'
/ŋ/ /'neda/ 'I' vs. /'neŋa/ 'this eye of mine'

7) apical vs. glottal

/d/ vs. /h/ /ga'mâda/ 'to sound' vs. /ga'mâha/ 'walking'

3.3.2.3. /T/ apical stop

1) stop vs. trill

/T/ vs. /r/ /aT/ 'firewood' vs. /ar/ exclamation

2) non-continuant vs. continuant

/T/ vs. /n/ /aT/ 'firewood' vs. /an/ 'in this way, so'

3) /T/ vs. /s/ /tâT/ 'lid' vs. /tâs/ 'bag'

4) /T/ vs. /l/ /baT/ 'to chisel' vs. /bal/ 'price'

5) apical vs. labial

/T/ vs. /p/ -
/b/ -
/m/ see 3.3.1.4.
/f/ see 3.3.1.6.
/w/ see 3.3.1.7.
/P/ see 3.3.1.3.
/U/ see 3.3.1.5.

6) apical vs. palatal

/T/ vs. /I/ /waT/ 'sun' vs. /'waI/ 'goat'
/maTta/ 'to be ill' vs. /maIta/ 'dancing place'

7) apical vs. velar

- /T/ vs. /k/ -
 /g/ -
 /ŋ/ /tâT/ 'with us' vs. /tâŋ/ 'to come up'
 /K/ /tâT/ 'with us' vs. /tâK/ 'to cut'

8) apical vs. glottal

- /T/ vs. /h/ /âT/ 'with you' vs. /âh/ 'eat'

3.3.2.4. /r/ apical trill/tap

1) apical vs. labial

- /r/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /m/ see 3.3.1.4.
 /f/ see 3.3.1.6.
 /w/ see 3.3.1.7.
 /U/ see 3.3.1.5.
 /P/ see 3.3.1.3.

2) trill vs. stop

- /r/ vs. /t/ see 3.3.2.1.
 /d/ see 3.3.2.2.
 /T/ see 3.3.2.3.

3) trill vs. continuant

- /r/ vs. /n/ /ar/ exclamation vs. /an/ 'in this way'
 /s/ /arʔ/ 'umbrella' vs. /a'si/ 'the salt'
 /l/ /'nereI/ 'below me' vs. /'neleI/ 'my turis' (species of Phaseolus, looks like Pigeon pea (*Cajanus cajan*))

4) apical vs. palatal

- /r/ vs. /j/ /a'râ/ 'pumpkin' vs. /a'jâ/ 'you go'
 /'siroh/ 'our spirits' vs. /'sijoh/ 'our shrimps'
 /I/ /ar/ exclamation vs. /'aI/ 'to take'

5) apical vs. velar

- /r/ vs. /k/ /'nereI/ 'below me' vs. /'nekeI/ 'my skewer'
 /g/ /'ruru/ affective for Ruben vs. /'guru/ 'teacher'
 /ŋ/ /'nera/ 'I' vs. /'neŋa/ 'my eye'
 /K/ /tar/ exclamation vs. /taK/ 'to run'

6) apical vs. glottal

- /r/ vs. /h/ /tar/ exclamation vs. /tah/ 'that's right'

3.3.2.5. /n/ vcd. apical nasal

1) apical vs. labial

- /n/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /m/ see 3.3.1.4.
 /f/ see 3.3.1.6.
 /w/ see 3.3.1.7.
 /U/ see 3.3.1.5.
 /P/ see 3.3.1.3.

2) nasal vs. stop

- /n/ vs. /t/ see 3.3.2.1.
 /d/ see 3.3.2.2.
 /T/ see 3.3.2.3.

3) nasal vs. trill

- /n/ vs. /r/ see 3.3.2.4.

4) nasal vs. oral

- /n/ vs. /s/ /'nîl/ 'we(excl.)' vs. /sil/ 'we(incl.)'
 /l/ /'lîla/ 'to fly' vs. /'nîla/ 'we(excl.)'

5) apical vs. palatal

- /n/ vs. /j/ /'nâ/ 'no, not' vs. /jâ/ 'to go'
 /naI/ 'I' vs. /jal/ 'he'
 /I/ /an/ 'so, in this way' vs. /'aI/ 'to take'

6) apical vs. velar

- /n/ vs. /g/ /nâ/ 'no, not' vs. /gâ/ 'garden'
 /K/ /tân/ 'to close (door)' vs. /tâK/ 'to cut'
 /ŋ/ /tân/ 'to close (door)' vs. /tânŋ/ 'to come up'
 /k/ /'nâI/ 'my vagina' vs. /kâI/ 'red jungle fowl' *Gallus gallus bankirra Temm.*

7) apical vs. glottal

- /n/ vs. /h/ /an/ 'so, in this way' vs. /ah/ 'faeces'

8) /n/ vs. /nn/ /'munâ/ place name vs. /'munna/ 'it stank'

3.3.2.6. /s/ apical fricative

1) apical vs. labial

- /s/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /m/ see 3.3.1.4.
 /f/ see 3.3.1.6.

- /s/ vs. /w/ see 3.3.1.7.
 /U/ see 3.3.1.5.
 /P/ see 3.3.1.3.
- 2) continuant vs. non-continuant
 /s/ vs. /t/ see 3.3.2.1.
 /d/ see 3.3.2.2.
 /T/ see 3.3.2.3.
- 3) fricative vs. trill
 /s/ vs. /r/ see 3.3.2.4.
- 4) fricative vs. nasal
 /s/ vs. /n/ see 3.3.2.5.
- 5) fricative vs. lateral
 /s/ vs. /l/ /sâ/ 'tackle for catching shrimps' vs. /lâ/ 'to burn,
 to shine'
- 6) apical vs. palatal
 /s/ vs. /j/ /sâ/ 'tackle for catching shrimps' vs. /jâ/ 'to go'
 /sâ/ 'tackle for catching shrimps' vs. /jâ/ 'stool'
 /I/ /tâs/ 'bag' vs. /tâI/ 'female genitals'
- 7) apical vs. velar
 /s/ vs. /k/ /'sâI/ 'bed' vs. /'kâI/ 'red jungle fowl'
 /g/ /'gidum/ 'his child' vs. /'sidum/ 'our child'
 /K/ /tâs/ 'bag' vs. /tâK/ 'to cut (grass)'
 /ŋ/ /tâs/ 'bag' vs. /tân/ 'to come up'
- 8) apical vs. glottal
 /s/ vs. /h/ /se/ 'to come' vs. /he/ an expletive of displeasure

3.3.2.7. /l/ apical lateral

- 1) apical vs. labial
 /l/ vs. /p/ see 3.3.1.1.
 /b/ see 3.3.1.2.
 /m/ see 3.3.1.4.
 /f/ see 3.3.1.6.
 /w/ see 3.3.1.7.
 /U/ see 3.3.1.5.
 /P/ see 3.3.1.3.
- 2) lateral vs. stop
 /l/ vs. /t/ see 3.3.2.1.
 /d/ see 3.3.2.2.
 /T/ see 3.3.2.3.

3) lateral vs. trill

/l/ vs. /r/ see 3.3.2.4.

4) lateral vs. nasal

/l/ vs. /n/ see 3.3.2.5.

5) lateral vs. fricative

/l/ vs. /s/ see 3.3.2.6.

6) apical vs. palatal

/l/ vs. /j/ /lâ/ 'to burn, to shine' vs. /jâ/ 'to go'

/lâ/ 'to burn, to shine' vs. /jâ/ 'stool'

/I/ /aI/ 'you' vs. /'aI/ 'to take'

7) apical vs. velar

/l/ vs. /k/ /'lâI/ 'a slice' vs. /'kâI/ 'red jungle fowl'

/g/ /'gaI/ 'bunch (of areca nuts)' vs. /'laI/ 'finished'

/K/ /taI/ 'to bind' vs. /taK/ 'to run'

/ŋ/ /'ala/ 'you' vs. /'aŋa/ 'that over there'

8) apical vs. glottal

/l/ vs. /h/ /aI/ 'you' vs. /ah/ 'faeces'

9) /l/ vs. /ll/ /'lela/ 'to play (of parts in motion)' vs. /'lella/
place name

3.3.3. Palatals

3.3.3.1. /j/ palatal approximant

1) palatal vs. labial

/j/ vs. /p/ see 3.3.1.1.

/b/ see 3.3.1.2.

/m/ see 3.3.1.4.

/f/ see 3.3.1.6.

/w/ see 3.3.1.7.

/U/ see 3.3.1.5.

2) palatal vs. apical

/j/ vs. /t/ see 3.3.2.1.

/d/ see 3.3.2.2.

/r/ see 3.3.2.4.

/n/ see 3.3.2.5.

/s/ see 3.3.2.6.

/l/ see 3.3.2.7.

3) palatal vs. velar

- /j/ vs. /k/ /jɔl/ 'to chase away (animals)' vs. /kol/ 'shield'
 /g/ /jâ/ 'to go' vs. /gâ/ 'stool'
 /ŋ/ /ga'taja/ 'his thigh' vs. /ga'taŋa/ 'his hand'
 /K/ -

4) palatal vs. glottal

- /j/ vs. /h/ /'aja/ 'the rain' vs. /'aha/ 'and, then'

5) /j/ vs. /Ij/ /'aja/ 'the bunch' vs. /'aIja/ 'taken'

3.3.3.2. /I/ palatal approximant

1) palatal vs. labial

- /I/ vs. /p/ -
 /b/ -
 /m/ see 3.3.1.4.
 /f/ -
 /w/ -
 /P/ see 3.3.1.3.
 /U/ see 3.3.1.5.

2) palatal vs. apical

- /I/ vs. /t/ -
 /d/ -
 /n/ see 3.3.2.5.
 /r/ see 3.3.2.4.
 /s/ see 3.3.2.6.
 /l/ see 3.3.2.7.
 /T/ see 3.3.2.3.

3) palatal vs. velar

- /I/ vs. /k/ -
 /g/ -
 /ŋ/ /âI/ 'your vagina' vs. /âŋ/ 'width (of cloth)'
 /K/ /sâI/ 'bed' vs. /sâK/ 'old'

4) palatal vs. glottal

- /I/ vs. /h/ /âI/ 'your vagina' vs. /âh/ 'eat'

3.3.4. Velars

3.3.4.1. /k/ velar stop

1) velar vs. labial

- /k/ vs. /p/ see 3.3.1.1.

- /k/ vs. /b/ see 3.3.1.2.
- /m/ see 3.3.1.4.
- /f/ see 3.3.1.6.
- /w/ see 3.3.1.7.
- /u/ see 3.3.1.5.

2) velar vs. apical

- /k/ vs. /t/ see 3.3.2.1.
- /d/ see 3.3.2.2.
- /r/ see 3.3.2.4.
- /n/ see 3.3.2.5.
- /s/ see 3.3.2.6.
- /l/ see 3.3.2.7.
- /T/ see 3.3.2.3.

3) velar vs. palatal

- /k/ vs. /j/ see 3.3.3.1.
- /I/ -

4) vcl. vs. vcd.

- /k/ vs. /g/ /'nekula/ 'this skin of mine' vs. /'negula/ 'my sugar'

5) stop vs. nasal

- /k/ vs. /ŋ/ /'ɔkɔ/ 'to be here' vs. /'ɔŋɔ/ 'to be there'

6) velar vs. glottal

- /k/ vs. /h/ /'haI/ interjection vs. /'kaI/ 'hurray, to cheer'

7) /k/ vs. /Kk/ /'koka/ 'raw' vs. /'koKka/ 'fallen down (of trees)'

3.3.4.2. /g/ vcd. velar stop

1) velar vs. labial

- /g/ vs. /p/ see 3.3.1.1.
- /b/ see 3.3.1.2.
- /m/ see 3.3.1.4.
- /f/ see 3.3.1.6.
- /w/ see 3.3.1.7.
- /U/ see 3.3.1.5.

2) velar vs. dental

- /g/ vs. /t/ see 3.3.2.1.
- /d/ see 3.3.2.2.
- /r/ see 3.3.2.4.
- /n/ see 3.3.2.5.
- /s/ see 3.3.2.6.
- /l/ see 3.3.2.7.
- /T/ see 3.3.2.3.

3) velar vs. palatal

/g/ vs. /j/ see 3.3.3.1.

/I/ -

4) vcd. vs. vcl.

/g/ vs. /k/ see 3.3.4.2.

5) stop vs. nasal

/g/ vs. /ŋ/ */'aga/ vs. /'aŋa/ 'over there'

6) velar vs. glottal

/g/ vs. /h/ /ga/ 'he' vs. /ha/ interjection

3.3.4.3. /K/ velar stop

1) velar vs. labial

/K/ vs. /m/ see 3.3.1.4.

/w/ see 3.3.1.7.

/U/ see 3.3.1.5.

/P/ see 3.3.1.3.

2) velar vs. dental

/K/ vs. /n/ see 3.3.2.5.

/r/ see 3.3.2.4.

/s/ see 3.3.2.6.

/l/ see 3.3.2.7.

/T/ see 3.3.2.3.

3) velar vs. palatal

/K/ vs. /j/ -

/I/ see 3.3.3.2.

4) stop vs. nasal

/K/ vs. /ŋ/ /aK/ 'this' vs. /aŋ/ 'that'

5) velar vs. glottal

/K/ vs. /h/ /'jesaK/ 'his grass' vs. /'jesah/ 'to stop, to hold up'

3.3.4.4. /ŋ/ voiced velar nasal

1) nasal vs. occlusive

/ŋ/ vs. /k/ see 3.3.4.1.

/g/ see 3.3.4.2.

/K/ see 3.3.4.3.

2) velar vs. labial

/ŋ/ vs. /p/ see 3.3.1.1.

/b/ see 3.3.1.2.

- /ŋ/ vs. /m/ see 3.3.1.4.
- /p/ see 3.3.1.3.
- /f/ see 3.3.1.6.
- /w/ see 3.3.1.7.
- /u/ see 3.3.1.5.

3) velar vs. apical

- /ŋ/ vs. /t/ see 3.3.2.1.
- /d/ see 3.3.2.2.
- /n/ see 3.3.2.5.
- /r/ see 3.3.2.4.
- /s/ see 3.3.2.6.
- /l/ see 3.3.2.7.
- /ʔ/ see 3.3.2.3.

4) velar vs. palatal

- /ŋ/ vs. /j/ see 3.3.3.1.
- /ɪ/ see 3.3.3.2.

5) velar vs. glottal

- /ŋ/ vs. /h/ /'aŋaKte/ 'that' vs. /'ahaKte/ 'thereupon, then'

/ŋ/ and /n/ are in opposition before /k,g/:

/asiŋku'aɪ/ 'worm' vs. */asinku'aɪ/

/ŋ/ and /m/ are in opposition word finally and before labials, though doublets occur: /tâm/ 'to cook' */tân/; /tân/ 'to come up' */tâm/, but /dum, duŋ/ 'child'.

3.3.5. /h/ glottal approximant

1) glottal vs. labial

- /h/ vs. /p/ see 3.3.1.1.
- /b/ see 3.3.1.2.
- /m/ see 3.3.1.4.
- /f/ see 3.3.1.6.
- /w/ see 3.3.1.7.
- /u/ see 3.3.1.5.
- /p/ see 3.3.1.3.

2) glottal vs. apical

- /h/ vs. /t/ see 3.3.2.1.
- /d/ see 3.3.2.2.
- /n/ see 3.3.2.5.
- /r/ see 3.3.2.4.
- /s/ see 3.3.2.6.

TABLE 2:¹¹ ALLOPHONES OCCURRING IN WOISIKA

1. upper articulator							lip	teeth		teeth or teeth ridge	hard palate	soft palate	uvula	vocal cords							
2. lower articulator							lip	tip	tip or blade	front	back										
3. secondary articulation										tongue mid			lips	tongue mid							
4. label summarising 1, 2, 3							bilabial	labiodental	dental	alveolar	palatal.alveolar	palatal	velar	labiodental	palatal. velar	uvular	glottal				
A	B	C	D	E	F	G															
position of the palate	relation between the articulators	release	label summarising A, B, C	position of the unobstructed passage	action of the glottis	air-stream mechanism															
raised	complete oral (and velic) closure	immediate release	stop		voiced	pulmonic egressive	b		d	d	d ^j		g	g ^u	g ^j	g					
					voiceless		p		t	t	t ^j		k			q	ʔ				
	(glottal) oral (and velic) closure				voiced	pharyngeal egressive	b ^ʔ														
						pharyngeal ingressive	β														
	complete oral (and velic) closure	without release	tap		voiceless aspirated		p ^h						k ^h								
					voiced aspirated		b ^h														
					voiceless		p ⁻		t ⁻	t ⁻			k ⁻								
	(complete velic closure and) repeated oral closure	immediate oral release	trill		voiced	pulmonic egressive				R											
					voiceless					r							g ^ʔ	q ^x			
	complete oral (and velic) closure	delayed oral release	affricate							ts											
lowered	complete oral closure (preceding velic closure)	nasal and oral release	nasal		voiced			m ^b			n ^d										
	complete oral closure	nasal release				m			n	n		ŋ			ŋ						
		without release				m ⁻			n ⁻	n ⁻		ŋ ⁻									
raised	absence of oral (and velic closure)	open approximation	approximant	central	voiceless		ɸ					j									
	(velic closure)						ɸ ^w					i j			ɸ	h					
		close approximation	fricative	central	voiced				l	l ^h											
														ɣ							
												f	s	s	s ^j		x				

/h/ vs. /l/ see 3.3.2.7.

/T/ see 3.3.2.3.

3) glottal vs. palatal

/h/ vs. /j/ see 3.3.3.1.

/I/ see 3.3.3.2.

4) glottal vs. velar

/h/ vs. /k/ see 3.3.4.1.

/g/ see 3.3.4.2.

/ŋ/ see 3.3.4.4.

/K/ see 3.3.4.3.

3.4. VOWEL PHONEMES

TABLE 3: VOWEL PHONEMES

	front		central	back	
	lax	tense		lax	tense
high	i	î		u	û
mid	e	ê		o	ô
low	ae		â	a	ao
	unrounded			rounded	

The following four principal dimensions are relevant in the classification of the vowel phonemes:

- (1) tongue advancement (front, central, back)
- (2) tongue height (high, mid, low)
- (3) tension (+T, -T)
- (4) degree of lip-rounding (+R, -R)

3.4.1. The muscular tension of tongue and lips provides a two-way distinction +T vs. -T: /î, ê, â, ô, û/ vs. /i, e, a, o, u/. /ae/ and /ao/ are tension irrelevant, its absence (-T) or presence (+T) does not distinguish /ae/ from /e, ê, a, â/ or /ao/ from /o, ô, a, â/ respectively. In /ae/ it is the relatively higher degree of frontness which makes it different from /â/, the realisation of which varies according to environment from central to relatively front. In /ao/, its backness and roundness are relevant in relation to /â/ but not in relation to /a/. There '+R' is the only distinctive feature. Since the actualisations

of /a/ vary from central to back, there is a positional tongue advancement overlap with /â/ which however, does not result in neutralisation because of the tense-lax opposition which keeps those phonemes apart. In /u/ 'R' has priority over tongue advancement.

The opposition +T vs. -T is not operative in /ae/ and /ao/, though both phonemes are positively tense and show all the accompanying redundant characteristics of the other tense phonemes, i.e. quantity, low level tone, etc. (see par. 3.4.2.). A notation */âê, aô/ is only justified if an opposition is demonstrable. This is not the case.

Here it is not decisive that lax variants do not exist in W. That may be simply another case of defective distribution. Whether the informant when confronted with artificially made lax variants is capable of distinguishing them from their tense pendants is crucial. If he cannot, then there is no opposition. If he can, we have discovered what I have called a systematic non-occurrence of features. Only in that case would I write */âê, aô/.

All vowel phonemes are relevantly voiced.

3.4.2. It took me a considerable amount of time to find out what exactly the distinguishing feature is between pairs such as

(1)	(2)
/sâk/ 'old'	/saK/ 'grass'
/tôn/ 'bamboo'	/ton/ 'breadfruit' <i>Artocarpus communis</i>
/sû/ 'heavy'	/su/ 'three'
/wê/ 'blood'	/we/ 'to go'
/kîl/ 'quiet'	/kil/ 'to stab'

The following features seem to play a part:

(1)	(2)
a) relatively longer duration	vs. relatively shorter duration
b) relatively more open	vs. relatively more closed
c) increasing muscular tension	vs. decreasing muscular tension
d) relatively lower tone level	vs. relatively higher tone level

One of the most striking features of series (1) is quantity in forms produced in isolation or in a very deliberate, rather unusual way of speaking. In natural speech this feature tends to disappear completely except in a prepausal open syllable where the (1) vowels are lengthened, acting as a boundary signal (see 3.5.0.). Of course, this temporal variable is not absolute but relative, depending on factors such as environment, position of the phonological unit in higher level units,

i.e. stress conditions, tempo, absence/presence of affectiveness, and the idiosyncrasies of the speaker.

To find out whether quantity was a distinctive feature which would then imply neutralisation between set (1) and (2) in normal speech, the following (non-instrumental) test was carried out. Without changing the other variables (as far as possible) the (1) vowels were shortened and those of (2) prolonged and in random order offered to the informants. 93% of the artificial forms were identified with the authentic form started from. This evidently proved the redundancy of quantity. Another quite intriguing characteristic is pitch. Especially in fast speech the members of the relatively more open set (1) are realised in a relatively lower tone level than those of (2). The same test has been applied, interchanging the pertinent tone levels, which showed that pitch is not distinctive in Woisika.

Though the informants tend to identify the relative grade of openness with the members of set (1) it appeared not really necessary to actualise the relative higher grade of openness. In normal speech there is an observable difference in lip opening and jaw position between the separate sets of minimal pairs, e.g. /i/ and /i/ vs. /e/ and /ê/ vs. /a/ and /â/ and so on, but there is often only a small difference or even no difference at all between the members of the minimal pairs themselves with regard to the above mentioned parameters, though they are easily noticeable in slow speech (see appendix 3). It should be added here that the degree of aperture is much easier observable in non-high vowels than in the high ones. Studying and repeating these oppositions and their realisations it became clear that although lip opening and jaw position may be an important concomitant phenomenon, the real physiological parameter is the muscular tension of tongue and lips. The tenseness of the lips is clearly observable in the (1) set. In /û/ and /ô/ the degree of lip rounding is higher and the lips are more protruding than in /u/ and /o/.

In /î/ and /ê/ the lips are slightly more open in general but also more spread as compared to the neutral lip position in /i/ and /e/. The tenseness of the tongue, especially that section closest to the palate, could of course not be checked in the informants; it is based on my own imitation of the sounds.

3.4.3. In W. there is a distinction in normal, deliberate speech between tense and lax vowels on the one hand and sequences of (more or less) similar vowels on the other, e.g.:

1) [ɔɔ]

[^hmiɔɔk-] /'miook/ 'two at the time'
 vs. [^hmiɔk-] /'mioK/ 'the second'

2) [α.α ~ α.a]

[^hma.α, ^hma.a] /'mâa/ 'gone'
 vs. [^hma.] /mâ/ 'to go'
 [^hnu^uα.α] /'nuâa/ 'the things'
 vs. [^hnu^uα.] /'nuâ/ 'thing'

3) [uu ~ uɥ]

[^hsuu ~ suɥ] /'suU/ 'three' +prom.m.
 vs. [^hsu] /su/ 'three'
 [^hsuute ~ 'suɥte] /'suUte/ 'once there were three but'
 vs. [^hsute] /'sute/ 'three but'

4) [u.u ~ u.ɥ]

[^hsu.u ~ 'su.ɥ] /'sûU/ 'trap' +prom.m.
 vs. [^hsu.] /sû/ 'heavy, trap'
 [^hsu.ute ~ 'su.ɥte] /'sûUte/ 'trap but'
 vs. [^hsu.te] /'sûte/ 'heavy but'

5) [ii ~ ij]

[^hsiija. ~ 'sijja.] /'siiJâ, 'siiâ/ 'we(incl.) go back'
 vs. [^hsi.ja.] /'sîjâ, 'sîâ/ 'to go and look for us(incl.)'
 [^hniih ~ 'nijh] /'niIH/ 'our(excl.) bodies'
 vs. [nih] /nih/ 'to sit'
 [^hmiisu ~ 'mijsu] /'miIsu/ 'to draw water repeatedly'
 vs. [^hmisu] /'misu/ 'three times'

6) [i.i.]

[ka'ri.i.] /ka'rîi/ 'under the house'
 vs. [ka'ri.] /ka'rî/ 'house'

7) [ii.]

[^hba.jii.] /'bâjiî/ 'under the tree' (Gnetum gnemon Linn.)
 vs. [^hba.ji] /'bâji/ 'tree' Gnetum gnemon Linn.
 vs. [^hba.i ~ ba.j] /'bâI/ 'big, great'

8) [aa]

[a'ai ~ a'aj] /a'aI/ 'you take'
 vs. [^hα.i ~ α.j] /'âI/ 'your vagina'
 vs. [^hai ~ aj] /'aI/ 'take'

The vowel clusters given above are attested across morpheme boundaries only (/V''V/). Their main auditory characteristics differ from those of the tense and lax vowels. They are noticeably longer (approximately half) than the tense vowels when spoken in isolation (see appendix 1).

In unstressed position or when stressed on the first component a glided (falling) tone is audible. Sequences in which the second component is stressed show a glided (rising) tone. This is in contradistinction to e.g. the relatively stable low level pitch in the tense vowels:

[m̩.] vs. ['m̩.aʔ]
[n̩.j] vs. [n̩'aʔ]

Another feature which distinguishes the vowel sequences from the single tense and lax vowels is the higher degree of diphthongisation found in the clusters.

In most sequences there is a presence of two syllable beats, whereas in par. 3.4.2. (1) and (2) vowels constitute one syllable. An exception however, must be made for sequences with a lax high segment as second component (3, 4, 5): in that position disyllabicity freely varies with monosyllabicity.

[V(')i ~ j#/C], [V(')u ~ w#/C]

Here we are dealing with neutralisation of /i/, /j/ and /u/, /w/ (see 3.4.4.) and these sequences are phonemicised as a sequence of phoneme plus archiphoneme.

In 2, the phoneme /a/ (+ [a ~ ɔ]) is optional in the low vowel sequences [α.aC] and [α.α#]. Both ['m̩.α] and [m̩.] stand for 'gone', but [m̩.] also means 'to go', whereas ['m̩.α] does not have that meaning: /'m̩a/ , /m̩a/. Other instances: ['b̩.α.k-] and ['b̩.k-] 'this fence' + /'b̩a.k/ , /b̩a.k/. In all other instances (1, 6, 7, 8) a pronunciation as one long vowel with one syllable beat was rejected as a possible realisation of the vowel clusters in favour of a clear re-initiation of the second vowel: they have been phonemicised as sequences of two vowels.

Apart from sequences of more or less similar vowel phonemes a whole series of sequences in /U/ or /I/ are encountered:

/aI/	/'aI/	'to take'	/aU/	/'faU/	'hammer'
/âI/	/'âI/	'your vagina'	/âU/	/'fâU/	k.o. rat guard +prom.m.
/eI/	/ta'neI/	'name(s)'	/eU/	/su'eUkan/	'probably coming'
/êI/	/ta'nêI/	'weak'	/êU/	/wêU/	'blood' +prom.m.

/iI/	/'siIjâ/	'we go back'	/iU/	/'nelamiU/	'my husband' +prom.m.
/îI/	/'sîIIda/	'we roast for us'	/iU/	/'tîU/	'mouse' +prom.m.
/aeI/	A/'saeI/	'to swim'	/aeU/	/'waeU/	'mango' +prom.m.
/oI/	/'woI/	'stone'	/oU/	/'noUko/	'my mother'
/ôI/	/'wôI/	'via'	/oU/	/'sôU/	'basket' +prom.m.
/uI/	/'kuI/	'dog'	/uU/	/'suU/	'three' +prom.m.
/ûI/	/'mûI/	'banana'	/ûU/	/sûU/	'trap' +prom.m.
/aoI/	/'kaoI/	k.o. reed or rush	/aoU/	/'paoUkaŋ/	'probably died down (of wind, a current)'

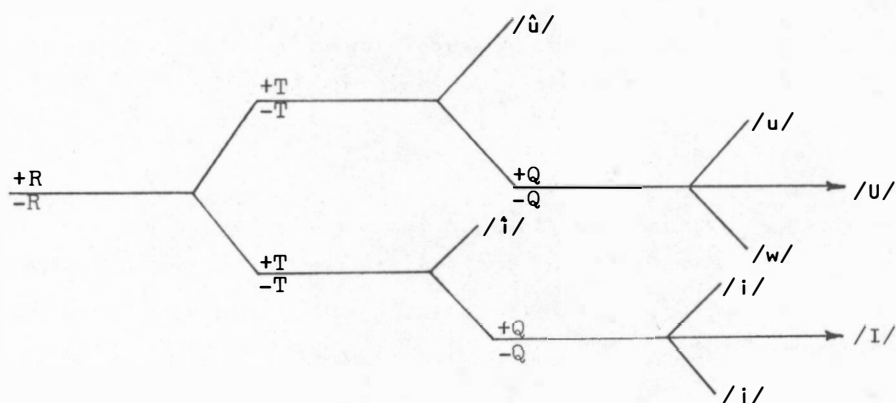
3.4.4. The Archiphonemes /I/ and /U/

In /j/ vs. /i/ and /w/ vs. /u/ it is the relative duration of the vowel which is distinctive. In unstressed position after a vowel before a consonant or a pause, neutralisation occurs: /I/ and /U/.

['neidama, 'nejdama]	/'neIdama/	'my older relative'
['eih, ejh]	/'eIh/	'your(sg.) body'
['iih, ijh]	/'iIh/	'your(pl.) body(ies)'
[su'boita, su'bojta]	/su'boIta/	'to jump'
['bai, baj]	/'baI/	'wall'
['bɑ.i, bɑ.j]	/'bâI/	'big'
['kui, kuj]	/'kûI/	'dog'
['wo.i, wo.j]	/'woI/	'via'
[ka'wailɑ, ka'wajla]	/ka'waIla/	'to stumble'
['au, 'α ^u ũ, 'aũ, aũ]	/'aU/	'pounder'
['nenaut-, 'nenau ^u t-, 'nenα ^u ũt-, 'nenau ^u t-]	/'nemaU/	'my relative of opposite sex'
['jemau, 'jemau ^u , 'jemα ^u ũ, 'jemay]	/'jemaU/	'his cat'
['mɑ.umãŋ, 'mɑ.ymãŋ]	/'mâUman/	place name
['kɑ.noukãŋ, 'kanoukãŋ]	/'kânoUkaŋ/	'it is probably in order'

/I/ and /U/ are in opposition with /i/ and /û/, respectively through the tenseness-correlation.

TABLE 4



For examples see 3.6.3. and 3.6.5.

3.4.5. Excursion on u-like Sounds

1) /u/ and /w/ are in opposition

/u'â/ (→ [u'ᵂᵃ.]) *k.o. bird* vs. /wa/ (→ [wᵃ.]) *'egg'*
 /'neuâ/ *'my bird'* vs. /'newâ/ *'my egg'*
 /'faua/ *'hammered'* vs. /'fawa/ *'the hammer'*

2) /u/ vs. /û/

/su/ *'three'* vs. /sû/ *'heavy'*
 /muT/ *'broom made from the fibres of the sugar palm'* (*Arenga saccharifera*) vs. /mûT/ *'lime (fruit)'*

3) /u/ and /w/ are neutralised in unstressed position after a vowel before a consonant or pause (see 3.4.4.)

/maU/ → ['mau, 'maᵂ, 'maᵂu] *'cat'*
 /'sinaUT/ → ['sinaut-, 'sinaᵂut-, 'sinaut] *'our(incl.) relative of opposite sex'*
 /'nemaUŋ/ → ['nemaũŋ, 'nemaᵂũŋ, 'nemaũŋ] *'my tool for making holes in bamboo'*

but: /ma'uŋ/ → [ma'ũŋ] *'tool for hollowing bamboo'*

/'migaUK/ → ['migauk-, 'migaᵂk] *'to roll up repeatedly'*

but: /ga'uK/ → [ga'uk-] *'to roll up'*

4) /U/ is in opposition with /û/

/'neâû/ → ['neᵃ.u.] *my k.of bird, Saturnia pyri (?)*

/neâU/ → [neα.u ~ neα.ɥ] 'my rice' +prom.m.

/mifaU/ → [mifa^uu, 'mifaɥ, 'mifaɥ] 'to hammer repeatedly'

5) /u/ vs. /uU/

/'sute/ 'three but ...' vs. /'suUte/ 'once there were three but'

/'su/ 'three' vs. /'suU/ 'three' +prom.m.

/û/ vs. /uU/

/'sû/ 'heavy' vs. /'suU/ 'three' +prom.m.

/U/ vs. /wu/

/'neaU/ 'my pounder' vs. /'neawu/ 'my pounder' +prom.m.

/'taU/ 'rattan' vs. /'tawu/ 'rattan' +prom.m.

6) A glide after [u] [u.] before a non-high vowel is never distinctive in normal speech (see 3.1.5.):

[u'ɣah] 'to turn around' /u'ah/

[neα.u.ɣα] this k.o. bird of mine /neâûa/

[bα.ɣɣα] 'pounded' /bâûa/

In slower, more deliberate speech the glide is relevant in some cases, irrelevant in other cases:

[u^uah, u'ah] → /u'ah/ 'to turn around'

[neα.u.^uα, neα.u.α] → /neâûa/ this k.o. bird of mine

but: [bα.uwα, bα.ɣwα] ← /bâUwa/ 'pounded'

/Uw/ is optional in the heavy form /bâUwa/ in relation to the basic form /baua/. Also [fauwα, faywα, faywα] ← /fâUwa/ 'hammered', /faua/.

7) After [a] before [u] a slight [ɥ] glide is facultative:

[mau, maũ, ma^uũ, mau] ← /maU/ 'cat'

[a^uh, aũh, a^uũh, a^uh] ← /aU/ 'deer'

[au, aũ, a^uũ, aɥ] ← /aU/ 'pounder'

[la'uj, la'ũj, la'^uuj, la'ɥj] ← /la'UI/ 'enemy'

[ta^u, taũ, ta^uu, taɥ] ← /taU/ 'rattan'

(along with [la'ui] ← /la'UI/)

Those forms are in opposition with those in [w] in the same environment; the higher degree of obstruction is decisive here:

[aWu] ← /awu/ 'pounder' +prom.m.

[tawu] ← /tawu/ 'rattan' +prom.m.

After [α.], [ɥ] never occurs:

[ma.u, ma.ũ, ma.u] ← /mâU/ 'who?'

[α.u, α.ũ, α.u] ← /âU/ 'rice' +prom.m.

3.4.6. In fast speech after a consonant, pretonic /a, u, i/ are optional before syllables consisting of /r, l, m, n, h/ and a similar phoneme (/a, â, u, û, i, î/, respectively):

/ki'riTka'raTda, 'kriTkraTda/ 'to make a noise'
 /fu'muŋ, fmuŋ/ 'down there'
 /ka'râ, krâ/ 'beam'

3.5. VOWEL PHONEMES: REALISATIONS

3.5.0. General Non-functional Modification of Vowels

1) After a pause vowels often have an abrupt onset indicated by [ʔ]:

[ʔedum ~ 'edum] 'your child' /'edum/
 [ʔakasi ~ 'akasi] 'in this way' /'akasi/
 [ʔuhok ~ 'uhok] 'two' /'uhok/
 [ʔina ~ 'ina] 'now' /'ina/

2) Before a pause tense vowels tend to be longer and show a smooth off-glide, lax vowels are shorter and are often realised with an abrupt off-glide indicated by [ʔ]:¹²

[tɛʔ ~ tɛ] 'to ascend' /tɛ/
 [wɔ̃.sɪʔ ~ 'wɔ̃.sɪ] 'to follow' /'wôsi/
 [gat'faʔ ~ gat'fɑ] 'to shoot' /gaT'fa/
 [wae. ~ wae:] 'mango' /wae/
 [we. ~ we:] 'blood' /wê/
 [ta. ~ ta:] 'on top of' /tâ/
 [i'li. ~ i'li:] 'the water' /i'li/

4) Vowels are nasalised before /ŋ/:

[ʔãŋɑ] 'that there' /'aŋɑ/
 [bõŋ] 'tree' /boŋ/
 [wa'letĩŋɑ] 'carry' /wa'letĩŋɑ/

3.5.1. /â/ low tense unrounded central vowel →

1) [ʔɑ. ~ ɑ.] in [#-]:

[ʔɑ., ɑ.] 'rice' /â/
 [ʔɑ.bejta, 'ɑ.bejta] 'husked rice' /'âbeIta/
 [ʔɑ.tda, 'ɑ.tda] 'to go to/from you' /'âTda/

2) [ɑ. ~ ɑ:] in [-#]:

[ɑ., ɑ:] 'rice' /â/
 [wɔbɑ., 'wɔbɑ:] 'he works, does' /'wobâ/
 [ga'jɑ., ga'jɑ:] 'he goes' /ga'yâ/
 [ɑ'bahsina., ɑ'bahsina:] 'do not pull out' /ɑ'bahsinâ/

3) [α · ~ ǣ ·] in [-ŋ]:

[kα · ŋ, kǣ · ŋ] "*Pohon Kusambi*" *Schleichera Oleosa* /kân/
 ['kata · ŋ, 'katǣ · ŋ] taboo sign/marker /'katân/

4) [ʔα · ~ ʔǣ · ~ α · ~ ǣ ·] in [#-ŋ]:

[ʔα · ŋ, ʔǣ · ŋ, α · ŋ, ǣ · ŋ] '*width (of cloth)*' /ân/

5) [α · ~ ʔα̂ ·] in [j-]:

['mɛ · jα ·, 'mɛ · jʔα̂] '*as far as*' /'mêjâ/

6) [α ·] everywhere else:

['pα · p-] '*spider web*' /pâP/
 ['nuɣα · nana] '*things*' /'nuânana/
 ['yɛ · bα · si] '*to tell him*' /'jêbâsi/
 ['mα · mα] '*gone*' /'mâma/
 ['tawα · tawα ·] '*each*' /'tawâtawâ/
 ['miawα · l] '*you return*' /'miawâl/

3.5.2. /a/ low lax unrounded non-front vowel →

1) [a] in [-CC/C#/S]:

['aɣbo] '*and*' /'ahbo/
 ['pajsan] '*tomorrow*' /'paIsan/
 ['kartas] '*paper*' /'kartas/
 ['wɔbajlɑ] '*to sell*' /'wobaIla/
 ['a'ra ·] '*pumpkin*' /a'râ/

2) [a ~ α] in [-Ovd.]:

[a'bah, α'bah] '*to pull out*' /a'bah/
 [a'di ·, α'di ·] '*sleeping-mat*' /a'dî/
 ['gaga, 'gαgα] '*crow*' /'gaga/

3) [ʔa ~ a] in [#-CC/C#/S]:

['ʔakmi, 'akmi] '*here*' /'akmi/
 [ʔap-, ap-] '*fish*' /'aP/
 ['ʔala, 'ala] '*you*' /'ala/

4) [ʔa ~ ʔα ~ a ~ α] in [≠-Ovd.]:

[ʔa'bah, ʔα'bah, a'bah, α'bah] '*to pull out*' /a'bah/

5) [ǣ ~ a] in [-ŋ]:

[α'tǣŋ, α'taŋ] '*your hand*' /a'taŋ/
 [α'tǣŋα, α'taŋα] '*this hand of yours*' /a'taŋa/
 ['pǣŋα, 'paŋα] '*that*' /'paŋa/

6) [ʔǣ ~ ʔa ~ ǣ ~ a] in [#-ŋ]:

['ʔǣŋα, 'ʔaŋα, 'ǣŋα, 'aŋα] '*that*' /'aŋa/

- 7) pretonic [a ~ ǎ ~ əv] in [-Ca/-Ca.] where [C] stands for [r, l, m, n, h]:

[ba'landa, bǎ'landa, bəv'landa] 'Holland' /ba'landa/
 [a'Rα, ǎ'Rα., əv'Rα.] 'pumpkin' /a'râ/
 [ka'ra., kǎ'ra., kəv'ra.] 'beam' /ka'râ/
 [ki'ritqa'ratda, ki'ritqǎ'ratda, k'ə'rit-qəv'ratda] 'to make a noise, to clatter' /ki'riTka'raTda/

- 8) [ʔa ~ ʔǎ ~ ʔəv ~ a ~ ǎ ~ əv] in [#-'Ca/-'Ca.] where C = [r, l, m, n, h]:

[ʔa'Rα., ʔǎ'Rα., ʔəv'Rα. ~ a'Rα. ~ ǎ'Rα. ~ əv'Rα.] 'pumpkin' /a'râ/

- 9) [ʔa ~ α] in [#-CV] except instances mentioned in 3), 4), 6) and 8)
 [ʔa'sa., α'sa.] k.o. *tuberous plant, Caladium bicolor, Vent* /a'sâ/
 [ʔa'ti., α'ti.] 'the firewood' /a'tî/

- 10) L[ǎ ~ α] in [m-]:

[ʔakɔramǎ, ʔakɔrama] 'was present' /ʔakorama/
 [su'ᵐamǎ, su'ᵐama] 'came' /su'ama/

- 11) [ǎʔ ~ aʔ ~ α] in [-#]:

['midǎʔ, 'midaʔ, 'mida] 'to wear' /'mida/
 ['bajlǎʔ, 'bajlaʔ, 'bajla] 'to buy' /'baIla/

- 12) [ǎ ~ ǎʔ ~ ǎʔ ~ ǎʔ ~ ǎ ~ α] in [m-#]:

['mǎ.mǎʔ, 'mǎ.mǎʔ, 'mǎ.mǎʔ, 'mǎ.mǎʔ, 'mǎ.mǎ, 'mǎ.mǎ] 'gone, left' /'mâma/

- 13) [α ~ 'α^] in [j-]:

[ja'ja., j'α^'ja.] 'he goes' /ja'jâ/
 [ja'wα., j'α^'wα.] 'his mouth' /ja'wâ/
 ['mijajoksi, 'mij'α^'joksi] 'to swing' /'mijajoksi/

- 14) [α] everywhere else:

[ka'tɛ.] 'to eat' /ka'tê/
 ['akasi] 'in this way, as follows' /'akasi/
 ['mifaretakan-na] 'it did not take long' /'mifaretakanna/
 ['almakǎŋ] 'people' /'almakan/
 ['pasarmida] 'to the market' /'pasarmida/

3.5.3. /ae/ low front unrounded vowel →

- 1) [ae. ~ ʔae.] in [#-]:

[ae.x, ʔae.x] 'your teeth' /aeh/

- 2) [ae. ~ ae:] in [-#]:

[lae. ~ lae:] 'top' /lae/

3) [ae. ~ ae.] in [-ŋ]:

- ['gae.ŋda, 'gaẽ.ŋda] 'to move away, to go away' / 'gaenda/
 [si'iaẽ.ŋda, si'iaẽ.ŋda] 'to answer us' / si'aenda/
 ['tae.ŋ, taẽ.ŋ] 'wrong' / taen/

4) [ʔaẽ. ~ ae. ~ ʔae. ~ ae.] in [#-ŋ]:

- ['ʔaẽ.ŋda, 'aẽ.ŋda, 'ʔae.ŋda, 'ae.ŋda] 'to answer you' / 'aenda/

5) [ae.] everywhere else:

- ['kae.ta] 'bent, crooked' / 'kaeta/
 ['nae.x] 'my teeth' / naeh/
 ['gae.ta] 'sloping, sheer' / 'gaeta/
 ['tae.wɔ] 'even' / 'taewo/

3.5.4. /ao/ low back rounded vowel →

1) [ao. ~ ʔao.] in [#-]:

- ['ʔao.tdama] 'you have disappeared' / 'aoTdama/

2) [ao. ~ ao: ~ aõ:] in [-#]:

- [sao. ~ sao: ~ saõ:] 'twisting, winding' / sao/
 [pao. ~ pao: ~ paõ:] 'loose (of string)' / pao/

3) [ao. ~ aõ.] in [-ŋ]:

- ['lao.ŋda, 'lãõŋda] 'to swing' / 'laõŋda/

4) [ao.] everywhere else:

- ['sao.ma] 'winded' / 'saoma/
 [gafuŋ'gao.rama] 'he was born' / gafuŋ'gaorama/
 ['tao.mãŋ] 'a bit queer' / 'taomaŋ/

3.5.5. /ê/ mid tense unrounded front vowel →

1) [ʔε. ~ ε.] in [#-]:

- ['ʔε.n, ε.n] 'yours' / ên/
 ['ʔε.l, ε.l] 'to creep, to crawl' / êl/

2) [ε. ~ e. ~ ε: ~ e:] in [-#]:

- [wε., we., wε:, we:] 'to set a trap' / wê/

3) [ε. ~ e.] in [-j/i]:

- [kɔ'mε.j, kɔ'me.j, kɔ'mε.i, kɔ'me.i] 'earthquake' / ko'mêI/
 [jε.j, je.j, 'jε.i, 'je.i] 'to laugh; road' / 'jêI/

4) [ʔε. ~ ʔe. ~ ε. ~ e.] in [#-j/i]:

- ['ʔε.j, 'ʔe.j, ε.j, e.j, 'ʔε.i, 'ʔe.i, 'ε.i, 'e.i] 'no, don't' / 'êI/

- 5) [ɛ. ~ ɛ̃.] in [-ŋ]:

[nɛ.ŋ, nɛ̃.ŋ] 'I, it's me who' /nɛ̃ŋ/

- 6) ['ɛ. ~ ɛ. ~ ʔɛ̃. ~ ɛ̃.] in [#-ŋ]:

[ʔɛ.ŋ, ɛ.ŋ, ʔɛ̃.ŋ, ɛ̃.ŋ] 'it's you who, you' /ɛ̃ŋ/

- 7) [ɛ.] everywhere else:

[fɛ.l] 'to cut into pieces lengthwise' /fɛ̃l/

[kɛ.t-tanouna] 'it's broken, torn so' /kɛ̃t-tanoUna/

[nɛ.bejta] 'my padi' /nɛ̃beIta/

[yɛ.lmãŋ] 'his granary' /yɛ̃lman/

[dɔksiⁱɛ.te] 'don't make noise' /dɔksiɛ̃te/

3.5.6. /e/ mid lax unrounded front vowel →

- 1) [ʔɛ ~ ɛ] in [#-]:

[ʔɛdum, 'ɛdum] 'your child' /'ɛdum/

[ʔɛlĩŋ, 'ɛlĩŋ] 'clear, visible' /'ɛlĩŋ/

- 2) [ɛ̃^ ~ e] in [-r/j/i] and in [-Ci/Ci.]:

[α'nɛ̃^ja, α'neja] 'your name' /e'neja/

[kɔ'mɛ̃^j, kɔ'mej, kɔ'mɛ̃^i, kɔ'mei] 'goitre' /ko'meI/

[nɛ̃^kiŋwɔ, 'nekiŋwɔ] 'I want, I like' /'nekiŋwɔ/

[nɛ̃^ra, 'nera] 'I' /'nera/

L[nɛ̃^idamã, 'neidamã] 'my older relative' /'neIdama/

- 3) [ʔɛ ~ ʔɛ̃^] in [#-r/i/j] and [#-Ci/Ci.]:

[ʔɛkĩŋwɔ, 'ʔɛ̃^kiŋwɔ] 'you want, you like' /'ekiŋwɔ/

[ʔɛjja., 'ʔɛ̃^jja.] 'you go back' /'eIjâ/

[ʔɛra, 'ʔɛ̃^ra] 'you' /'era/

- 4) [ɛ̃ ~ ɛ] in [-ŋ]:

[nɛ̃ŋ, nɛŋ] 'my eye' /nɛ̃ŋ/

- 5) [ʔɛ̃ ~ ʔɛ] in [#-ŋ]:

[ʔɛ̃ŋ, ʔɛŋ] 'your eye' /ɛ̃ŋ/

- 6) [ɛ̃? ~ ɛ? ~ ɛ] in [-#]:

[tɛ̃?, tɛ?, tɛ] 'to descend' /te/

[tɔlkondante?, tɔlkondante] 'in a moment' /tɔlkondante/

[sinẽ?, sine?, sine] 'to weave, to make baskets' /sine/

- 7) [ɛ] everywhere else:

[dehta] 'viscous, coagulate' /dehta/

[jekajta] 'his trap' /jekaIta/

[ma'tet-] 'certainly, indeed' /ma'teT/

[sisel] 'our bone' /sisel/

['mifalɛn] 'to bury' /'mifalɛn/

[ta'nɛl] 'to weep' /ta'nɛl/

3.5.7. /ô/ mid tense rounded back vowel →

1) [ʔɔ. ~ ɔ.] in [#-]:

['ʔɔ.ma, 'ɔ.mə] 'followed you' /'ôma/

2) [ʔo. ~ o.] in [#-y/u]:

['ʔo.ykɔ, 'o.ykɔ, 'ʔo.ukɔ, 'o.ukɔ] 'your mother' /'oUko/

3) [ʔɔ. ~ ʔɔ. ~ ɔ. ~ ɔ.] in [#-ŋ]:

[ʔɔ.ŋ, ʔɔ.ŋ, ɔ.ŋ] 'anklebands' /ôŋ/

4) [ɔ. ~ o. ~ ɔ: ~ o:] in [-#]:

[sɔ., so., sɔ:, so:] 'basket' /sô/

['siɔ., 'siɔ., 'siɔ:, 'siɔ:] 'follow us' /'siô/

5) [o.] in [-y/u]:

['so.y, 'so.u] 'container' +prom.m. /'sôU/

6) [ɔ.] everywhere else:

[sɔ.n] 'to pop up' /sôn/

[tɔ.n] 'bamboo' /tôn/

['tɔ.nĩŋdãŋbɔ] 'what about' /'tôniŋdãŋbo/

3.5.8. /o/ mid lax rounded back vowel →

1) [ʔɔ ~ ɔ] in [#-]:

['ʔɔɛ, 'ɔɛ] 'friend!' /'ole/

['ʔɔkɔ, 'ɔkɔ] 'to be present' /'oko/

['ʔɔluh, 'ɔluh] 'to rub yourself' /'oluh/

2) [o ~ ɔ] in [-y/u] and in [-Cu/Cu.]:

['noukɔ, 'noyɔ, 'noyɔkɔ] 'my mother' /'noUko/

['sou, 'soy, 'sɔu, 'sɔu] 'burnt down' /'soU/

['miⁱoku, 'miⁱɔku] 'the second' +prom.m. /'mioku/

3) [ʔo ~ ʔɔ] in [#-u/y] and in [#-Cu/Cu.]:

['ʔoku, 'ʔɔku] 'two' +prom.m. /'oku/

-

['ʔoukɔ, 'ʔɔukɔ] 'your mother' /'oUko/

4) [ɔ ~ ɔ] in [-ŋ]:

[bɔŋ, bɔŋ] 'tree' /boŋ/

[ga'sɔŋɔ, ga'sɔŋɔ] 'to stab him' /ga'soŋda/

5) [ʔɔ ~ ɔ ~ ʔɔ ~ ɔ] in [#-ŋ]:

['ʔɔŋɔ, 'ɔŋɔ, 'ʔɔŋɔ, 'ɔŋɔ] 'to be there' /'oŋo/

- 6) [ʒʔ ~ ɔʔ ~ ɔ] in [-#]:
 ['nekiŋwʒʔ, 'nekiŋwɔʔ, 'nekiŋwɔ] 'I want' /'nekiŋwo/
 ['bɔkʒʔ, 'bɔkɔʔ, 'bɔkɔ] 'bad' /'boko/

- 7) [ɔ] everywhere else:
 [wɔj, 'wɔi] 'stone' /'woI/
 ['wɔsɔl] 'to start' /'wosol/
 [lɔm] 'to speak' /lom/
 ['mɔjman] village name /'moIman/
 ['jemɔk-mi] 'in his infancy' /'jemokmi/
 R['mɔkuniŋ] 'werewolf' /'mokuniŋ/

3.5.9. /i/ high tense unrounded front vowel →

- 1) [ʔi. ~ i.] in [-#]:
 ['ʔi.wɛ, 'i.wɛ] 'to prop up (of houses)' /'iwe/
 2) [i. ~ i:] in [-#]:
 [ti., ti:] 'mouse' /tî/
 [i'li., i'li:] 'the water' /i'li/
 [ka'ri.i., ka'ri.i:] 'under the house' /ka'rî/
 3) [i. ~ ī.] in [-ŋ]:
 [ni.ŋ, nī.ŋ] 'we(excl.), it is us who' /niŋ/
 4) [ʔi. ~ ʔī. ~ i. ~ ī.] in [-ŋ]:
 [ʔi.ŋ, ʔī.ŋ, i.ŋ, ī.ŋ] 'you are the ones who' /iŋ/
 5) [i.] everywhere else:
 [bɑ.gɑ'ri.kɑ] 'the lower part of the fence' /bāga'rîka/
 [ki.l] 'quiet' /kîl/
 ['ji.jɑ.] 'they go back' /'jîjâ/
 ['si.tɑ] 'to splash, to bubble' /'sîta/

3.5.10. /i/ high lax unrounded front vowel →

- 1) [i ~ ɪ] in [-CC/C#/S]:
 [pe'timpuj, pe'timpuj] place name /pe'timpuI/
 R['tɑ.pil, 'tɑ.pil] 'to heighten the sty, pen' R/'tâpil/
 [dit-, dît-] 'to shoot, to throw' /diT/
 [nil, nîl] 'we(excl.)' /nil/
 ['nilɑ, 'nîlɑ] 'we(excl.)' /'nilɑ/
 ['nirɑ, 'nîrɑ] 'we(excl.)' /'nirɑ/
 ['nei.jɑ., 'neijɑ.] 'I go back' /'neijâ/
 ['titlɑ, 'tîtlɑ] 'night' /'titlɑ/

- 2) [ʔi ~ i ~ ʔi ~ i] in [#-CC/C#/S]:
 ['ʔitsi, 'itsi, ʔitsi, 'itsi] 'to call' +non-past m. /'iTsi/
 ['ʔilal, 'ilal, ʔilal, 'ilal] 'to see' /'ilal/
 [ʔil, il, ʔil, il] 'water' /il/
- 3) [i ~ i ~ i ~ i] in [-ŋ]:
 [fi'nĩŋ, fi'niŋ, fi'nĩŋ, fi'ln] 'soil' /fi'niŋ/
 [pĩŋ, piŋ, pĩŋ, plŋ] 'dish' /piŋ/
 [a'wĩŋŋa, a'wiŋŋa, a'wĩŋŋa, a'wiŋŋa] place name /a'wiŋŋa/
- 4) [ʔi ~ i ~ i ~ i ~ i ~ i] in [#-ŋ]:
 ['ʔĩŋkoŋ, 'ĩŋkoŋ, 'ĩŋkoŋ, ʔĩŋkoŋ, ĩŋkoŋ, 'ĩŋkoŋ] 'just now, recently' /'ĩŋkoŋ/
- 5) pretonic [i ~ i ~ i ~ i] in [-Ci/-Ci.] where C stands for [r, l, n]:
 [ki'ritka'ratda, kĩ'ritkã'ratda, k'ĩ'ritkã'ratda] 'to make a noise' /ki'riTka'raTda/
 [fi'niŋ, fĩ'niŋ, f'ĩ'niŋ] 'soil' /fi'niŋ/
 [tap-ki'ri, tap-kĩ'ri, tap-k'ĩ'ri] 'spider' /taPki'ri/
 [siri'kaja, sĩri'kaja, s'ĩ'ri'kaja] 'sweet sap' *Anona squamosa* /siri'kaja/
- 6) [ʔi ~ i ~ i ~ i ~ i ~ i ~ i ~ i ~ i ~ i] in pretonic position
 [#-Ci/Ci.] where C stands for [r, l, n]:
 [ʔi'nĩŋsu, ʔĩ'nĩŋsu, ʔ'ĩ'nĩŋsu, ʔi'nĩŋsu, ʔĩ'nĩŋsu, i'nĩŋsu, ĩ'nĩŋsu, 'ĩ'nĩŋsu, l'nĩŋsu, ĩ'nĩŋsu] 'you three' /i'niŋsu/
- 7) [ʔi ~ i] in [#-CV] with exception of instances mentioned in 2), 4) and 6):
 ['ʔipã, 'ipã] 'dead' /'ipã/
 [ʔi'pãŋpa, i'pãŋpa] 'space under overhanging brink' /i'pãŋpa/
 [ʔi'sej, i'sej] 'meat' /i'seI/
- 8) [ʔi ~ i ~ i ~ i ~ i ~ i] in [-#]:
 ['latsĩ, 'latsi, 'latsĩ, 'latsi, 'latsi] 'to stand' /'laTsi/
 [wa'letĩ, wa'leti] 'carry!' /wa'leti/
 ['bã·i, 'bã·i, 'bã·i] 'big, great' /'bãI/
 ['nelamĩ, 'nelami ~ 'nelami] 'my husband' /'nelami/
- 9) [i] everywhere else:
 ['mifalen] 'to bury' /'mifalen/
 ['wilpãŋ] 'cold' /'wilpaŋ/
 ['midoun] 'to be warm' /'midoUn/
 [ka'fuhsipi] 'to sew' /ka'fuhsipi/

3.5.11. /û/ high tense rounded back vowel →

- 1) [ʔu· ~ u·] in [#-]:
 [ʔu·u·rɑ, 'u·u·rɑ] 'to make an uu like sound' /'ûûra/
 [ʔu·tĩŋ, 'u·tĩŋ] See Stokhof 1977:23 /'ûtiŋ/
- 2) [u· ~ u:] in [-#]:
 [ɑ·'u·, ɑ·'u:] k.o. bird /â'û/
 [su·, su:] 'heavy' /sû/
- 3) [u· ~ ũ·] in [-ŋ]:
 [gɑ'su·ŋdahakbɔ, gɑ'sũ·ŋdahakbɔ] 'to be about to bite (of snake only)' /gɑ'sûŋda/
 [bu·ŋ, bū·ŋ] k.o. tree /bûŋ/
- 4) [ʔu· ~ ʔũ· ~ u· ~ ũ·] in [#-ŋ]:
 L[ʔu·ŋ, ʔũ·ŋ, u·ŋ, ũ·ŋ] 'pot, pan' L/ûŋ/
- 5) [u·] everywhere else:
 [lu·k-] a very small k.o. wild tuber ("ubi hutan") /lûK/
 [gɑ'bu·mǎŋ] 'plank on the top of a roof' /gɑ'bûmaŋ/
 ['bu·ta] 'tattoo' /'bûta/

3.5.12. /u/ high lax rounded non-front vowel →

- 1) [u ~ ʊ] in [-CC/C#/S]:
 ['lug-bel, 'lug-bel] k.o. bird, Turnix suscitator suscitator (Gmel.) /'luKbel/
 ['wuluh, 'wuluh] 'to rub it' /'wuluh/
 [kut-, kut-] 'arrow' /kuT/
 ['duma, 'duma] 'the child' /'duma/
- 2) [ʔu ~ u ~ ʔʊ ~ ʊ] in [#-CC/C#/S]:
 [ʔux, ux, ʔʊx, ʊx] 'fruit' /uh/
 [ʔuxda, 'uxda, 'ʔuxda, 'uxda] 'to be closed' /'uhda/
 [ʔura, 'ura, 'ʔura, 'ura] 'New Guinea Imperial pigeon' /'ura/
- 3) [ũ ~ u ~ ʊ ~ ʊ] in [-ŋ]:
 [fũŋ, fun, fũŋ, fun] 'below' /fun/
 ['bũŋa, 'buŋa, 'bũŋa, 'buŋa] 'tree, flower' (BI) /'buŋa/
- 4) [ʔũ ~ ũ ~ u ~ ʔʊ ~ ʊ ~ ʊ] in [#-ŋ]:
 R[ʔũŋ, ũŋ, uŋ, ʔʊŋ, ʊŋ, ʊŋ] 'pot, pan' R/uŋ/
- 5) [ʔu ~ u] in [#-CV] except instances mentioned in 2) and 4):
 ['ʔukāŋda·sĩŋ, 'ukāŋda·sĩŋ] 'instructions' /'ukāŋdâsiŋ/

- 6) pretonic [u ~ ʊ ~ ʉ] in [-Cu/Cu·] where C stands for [h, m]:

[fu'mũŋ, fũ'mũŋ, fʉ'mũŋ] 'down there' /fu'muŋ/

[mu'hũŋ, mũ'hũŋ, mʉ'hũŋ] 'over there' /mu'hun/

[su'muj, sũ'muj, sʉ'muj] 'wind' /su'muI/

- 7) [u/v ~ ü] in [-CVunr] if unstressed:

[su'ʰɛ, su'ʰɛ, sũ'ʰɛ] 'to come' /su'e/

[su'ʰama, su'ʰama, sũ'ʰama] 'came' /su'ama/

[lu'mej, lu'mej, lü'mej] 'eel' /lu'meI/

['misubay, 'misübay] 'to sieve, to winnow' /'misubaU/

- 8) [ʃ? ~ ʊ? ~ ʉ? ~ u? ~ u] in [-#]:

[sʃ?, su?, sũ?, su?, su] 'three' /su/

['buku?, 'buku?, 'buku] 'book' (BI) /'buku/

['sikuru?, 'sikuru?, 'sikuru] 'we play, our play' /'sikuru/

['tawu?, 'tawu?, tawu] 'rattan' +prom.m. /'tawu/

- 9) [u] everywhere else:

['luʰa·] 'withered leaf' /'luâ/

M['kusĩŋ] 'nail' M/'kusiŋ/

['luifa] 'to twist off' /'luIfa/

3.5.13. /U/ archiphoneme of /w/ and unstressed /u/ (see 3.4.4.;

3.2.1.6.; 3.5.1.2.) →

- 1) [u ~ ʊ ~ ʉ ~ ʰũ] in [α/a-C]:

['nɛnaut, 'nɛnaut, 'nɛnaut, 'nɛnʰut] 'relative of opposite sex' /'nɛnaUT/

- 2) [ũ ~ ʊ ~ ʉ ~ ʰũ ~ u ~ ʊ ~ ʉ ~ ʰũ] in [α/a-ŋ]:

['aũŋka, aũŋka, 'aũŋka, 'aʰũŋka, 'auŋka, 'aũŋka, 'aũŋka, 'aʰũŋka] 'Ceriman' *Monstera deliciosa* /'aUŋka/

- 3) [u ~ ʊ ~ ʉ] in [V-C] except instances mentioned in 1) and 2):

['ba·uta, 'ba·ʊta, 'ba·ʉta] 'to flatten' /'bâUta/

['suute, 'suʊte, 'suʉte] 'once there were three, but' /'suUte/

['nouko, 'nouko, 'nouko] 'my mother' /'noUko/

- 4) [u? ~ u ~ ʊ? ~ ʊ ~ ʉ? ~ ʉ ~ ʉ? ~ ʰũ? ~ ʰũ ~ ʰũ?] in [α/a-#]:

['tau?, 'tau, 'tau?, tau, tau?, 'taʉ?, 'taũ, 'tau?, 'taʰũ?, 'taʰũ, 'taʰũ?] 'rattan' /'taU/

- 5) [u? ~ u ~ ʊ? ~ ʊ ~ ʉ? ~ ʉ ~ ʉ?] in [V-#] except instances mentioned in 4):

['ta·u?, 'ta·u, 'ta·ʊ?, ta·ʊ, ta·ʊ?, 'ta·ʉ?, 'ta·ʉ, 'ta·ʉ?] 'which?' /'tâU/

['maleu?, 'maleu, 'maleu?, 'maleu, 'maleu?, 'maleu?, 'maleu?]
'wife' +prom.m. /'maleu/

3.5.14. /I/ archiphoneme of /j/ and unstressed /i/ (see 3.4.4.; 3.2.3.; 3.5.10.) →

1) [ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ ~ ɪ] in [V-ŋ]:

[ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ,
ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ, ka'wα·ɪŋɔ]
'speak!' /ka'wâɪŋɔ/

2) [i? ~ i ~ i? ~ i? ~ i? ~ i? ~ i? ~ i? ~ i? ~ i?] in [V-#]:

['bα·i?, 'bα·i, 'bα·i?, 'bα·ɪ, 'bα·j ~ 'bα·j?] 'big' /'bâɪ/
['ai?, 'ai, 'ai?, 'ai? ~ aj ~ aj?] 'to take' /'aɪ/

3) [i ~ i ~ i ~ i ~ i ~ i ~ i ~ i ~ i ~ i] in [V-C] except 1):

['neiɔ, 'neiɔ, 'neiɔ, 'neiɔ, 'neiɔ] 'I go back' /'neɪâ/
['siɪɔ, 'siɪɔ, 'siɪɔ, 'siɪɔ, 'siɪɔ] 'we go back' /'siɪâ/
['moɪmãŋ, 'moɪmãŋ, 'moɪmãŋ, 'moɪmãŋ, 'moɪmãŋ] place name /'moɪmãŋ/
['se·ɪɔ, 'se·ɪɔ, 'se·ɪɔ, 'se·ɪɔ, 'se·ɪɔ] 'light (of weight)'
/'sêɪɔ/
['maɪɔ, 'maɪɔ, 'maɪɔ, 'maɪɔ, 'maɪɔ] 'dancing-place' /'maɪɔ/

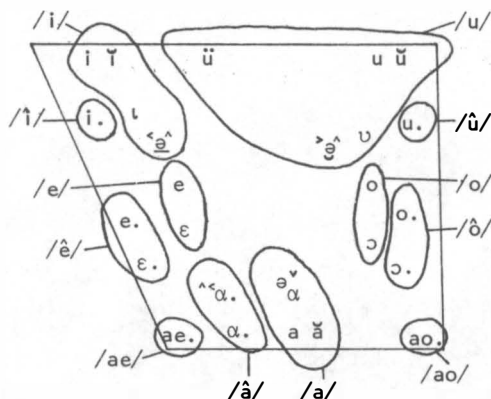
TABLE 5

Main Allophones of Woisika Vowel Phonemes Without
Modifications Mentioned in par.3.5.0.

	front		central		back	
	lax	tense	unrounded		rounded	
			lax	tense	lax	tense
high	ü	i ɪ			u ʊ	
lower-high		ɪ ɛ̃			ʊ ʊ̃	u.
higher-mid	e				o	
mid		e.				o.
lower-mid	ɛ				ɔ	
higher-low		ɛ.	ə̃			ɔ.
low		ɛ̃	ə			
lower-low		ae.	α.		a ǣ	ao.

TABLE 6

Auditory Vowel Quadrilateral: Allophones (modifications mentioned in par.3.5.0. are not included)



3.6. VOWEL PHONEMES: OPPOSITIONS

3.6.1.

- /i/ vs. /î/ /kil/ 'to stab' vs. /kîl/ 'quiet'
 /ê/ /niŋ/ 'our eyes' vs. /nêŋ/ 'it is me who'
 /ae/ /nih/ 'to sit' vs. /naeh/ 'my teeth'
 /â/ /'nenih/ 'I sit' vs. /'nenâh/ 'I eat'
 /ao/ /si/ 'we' vs. /sao/ 'winding'
 /ô/ /kil/ 'to stab' vs. /kôl/ 'cabbage'
 /û/ /si/ 'we' vs. /sû/ 'heavy'
-
- /e/ /miT/ 'to plant' vs. /meT/ 'to take'
 /a/ /'ikmi/ 'here' vs. /'akmi/ 'here' (more general)
 /o/ /kil/ 'to stab' vs. /kol/ 'shield'
 /u/ /lih/ 'pounder' vs. /luh/ 'to rub'
-
- /j/ /'iâ/ 'your rice' vs. /jâ/ 'to go'
 /jâ/ 'stool'
 /'iâh/ 'you eat!' vs. /jâh/ 'he eats'
 /i'aIma/ 'you all' vs. /jaIma/ 'they all'
-
- /iI/ /'misu/ 'third' vs. /'miIsu/ 'to draw air repeatedly'
 /'sijâ/ 'our stool' vs. /'siIJâ/ 'we go back/home'
 /'nih/ 'to sit' vs. /'niIH/ 'your bodies'
-
- /ii/ /'siâ (~ 'sijâ)/ 'our stools' vs. /'siiâ (~ 'siIJâ)/
 'we go back/home'

/iâh/ 'you eat!' vs. /iiâh/ 'you eat'
 /ji/ /'idum/ 'your child' vs. /'jidum/ 'his child'

3.6.2.

/î/ vs. /ê/ /'nêwoI/ 'my lime (chalk)' vs. /'nîwoI/ 'our lime (chalk)'
 /ae/ /ga'kî/ 'his armpit' vs. /ga'kae/ 'it shrieks (of pigs)'
 /â/ /î/ 'under, below' vs. /â/ 'rice'
 /ao/ /sî/ k.o. worm vs. /sao/ 'winding'
 /ô/ /kîl/ 'quiet' vs. /kôl/ 'cabbage'
 /û/ /pî/ k.o. mango, *Mangifera indica* L. (?) vs. /pû/ 'a tart'
 /i/ see 3.6.1.
 /e/ /'nîwoI/ 'our lime (chalk)' vs. /'newoI/ 'my stone'
 /a/ /î/ 'under, below' vs. /a/ 'you'
 /o/ /kîl/ 'quiet' vs. /kol/ 'shield'
 /u/ /kîl/ 'quiet' vs. /kul/ 'again'
 /I/ /'bâî/ 'under the fence' vs. /'bâI/ 'big, great'
 /'kaî/ 'caul' vs. /'kaI/ 'to cheer, hurrah'
 /jî/ /'jewai/ 'under his foot' vs. /'jewajî/ 'it's leprosy'
 /iI/ /'sîjâ/ 'to go search for us' vs. /'siIjâ/ 'we go back/home'
 /j/ /'woîa/ 'whetted, sharpened' vs. /'woja/ 'the stone'
 /eI/ /lî/ 'parrot' vs. /'leI/ species of *Phaseolus* looks like Pigeon pea (*Cajanus cajan*) "turis"
 /îI/ /'sîda/ 'we do' vs. /'sîIda/ 'we roast for us'
 /êI/ /lî/ 'parrot' vs. /'lêI/ raja

3.6.3.

/I/ vs. /î/ /'woI/ 'Batu' vs. /'woî/ 'to whet'
 /ji/ /'bâI/ 'big, great' vs. /'bâji/ k.o. tree, *Gnetum gnemon* Linn.
 /jî/ /'woI/ 'stone' vs. /'wojî/ 'under the stone'

3.6.4.

/u/ vs. /î/ see 3.6.2.
 /ê/ /kul/ 'again' vs. /kêl/ "keladi hutan", k.o. tuberous plant
 /ae/ /tun/ 'up there' vs. /taen/ 'each other'
 /â/ /tun/ 'up there' vs. /tân/ 'to come up'
 /ao/ /su/ 'three' vs. /sao/ 'winding'

/ô/ /su/ 'three' vs. /sô/ 'basket'
 /û/ /su/ 'three' vs. /sû/ 'heavy, trap'
 /i/ see 3.6.1.
 /a/ /mut/ 'broom' vs. /maT/ 'to be painful'
 /a/ /luK/ 'to bow' vs. /laK/ 'language'
 /o/ /'wuI/ 'moon' vs. /'woI/ 'stone'
 /w/ /'neuâ/ k.o. bird vs. /'newâ/ 'my egg'
 /uU/ /su/ 'three' vs. /'suU/ 'three' +prom.m.
 /oU/ /su/ 'three' vs. /'soU/ 'burnt down'
 /ôU/ /su/ 'three' vs. /'sôU/ 'basket' +prom.m.

3.6.5.

/û/ vs. /î/ /sû/ 'trap, heavy' vs. /sî/ k.o. worm
 /è/ /tû/ 'all, only' vs. /tê/ 'to dig'
 /ae/ /'lûŋbo/ 'lake' +pl.rel.m. vs. /'laenbo/ 'still in debt, and'
 /â/ /'wûI/ '(an) empty place' vs. /'wâI/ 'pond'
 /ao/ /sû/ 'trap' vs. /sao/ 'winding'
 /ô/ /sû/ 'trap' vs. /sô/ 'basket'
 /i/ /mûT/ 'lime (fruit)' vs. /miT/ 'to plant'
 /e/ /mûT/ 'lime (fruit)' vs. /meT/ 'to take'
 /a/ /tûK/ 'to crush (pepper)' vs. /taK/ 'to run'
 /o/ /'wûI/ '(an) empty place' vs. /'woI/ 'stone'
 /u/ /i'sûma/ 'bitten (by snake)' vs. /i'suma/ 'drawn (of water)'
 /w/ /'neâûa/ this k.o. bird of mine vs. /'neawa/ 'the pounder of mine'
 /'faûa/ 'folded (of cloth)' vs. /'fawa/ 'the hammer'
 /U/ /'neâû/ my k.o. bird vs. /'neâU/ 'my rice' +prom.m.
 /'faû/ 'to fold (of cloth)' vs. /'faU/ 'hammer'
 /'jemaû/ 'they wage war' vs. /'jemaU/ 'his cat'
 /wu/ /'jemaû/ 'they wage war' vs. /'jemawu/ 'his cat' +prom.m.
 /uU/ /'sute/ 'heavy but' vs. /'suUte/ 'once there were three but'
 /oU/ /sû/ 'heavy, trap' vs. /'soU/ 'burnt down'
 /ôU/ /sû/ 'heavy, trap' vs. /'sôU/ 'basket' +prom.m.

3.6.6.

/U/ vs. /û/ see 3.6.5.
 /wu/ /'maU/ 'cat' vs. /'mawu/ 'cat' +prom.m.

3.6.7.

- /o/ vs. /i/ see 3.6.2.
 /è/ /wo/ 'there is' vs. /wè/ 'blood; flood'
 /ae/ /wo/ 'there is' vs. /wae/ 'mango'
 /â/ /'woI/ 'stone' vs. /'wâI/ 'pond'
 /ao/ /'worama/ 'there was' vs. /'waorama/ 'give birth to'
 /ò/ /wo/ 'there is' vs. /wò/ 'to follow'
 /û/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ /wo/ 'there is' vs. /we/ 'to go'
 /a/ /tol/ 'a little' vs. /tal/ 'to bind'
 /u/ see 3.6.4.
 /oo/ /'mioK/ 'second' vs. /'miooK/ 'two by two, in two's'
 /oU/ /ko/ 'cassava' *Manihot utilissima* vs. /'koU/ 'cassava'
 +prom.m.
 /oa/ /wo/ 'there is' vs. /'woa/ 'there was'

3.6.8.

- /ò/ vs. /i/ see 3.6.2.
 /è/ /wò/ 'to follow' vs. /wè/ 'blood; flood'
 /ae/ /wò/ 'to follow' vs. /wae/ 'mango'
 /â/ /kôn/ 'tool for taming pigs' vs. /kân/ "Pohon Kusambi"
 /ao/ /kôn/ 'tool for taming pigs' vs. /kaon/ 'to go wide
 (of shot)'
 /û/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ /wò/ 'to follow' vs. /we/ 'to go'
 /a/ /kôn/ 'tool for taming pigs' vs. /kan/ 'good'
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /aU/ /'mikò/ 'to stay for a long time' vs. /'mikaU/ 'to
 bind certain place of a bow with cord'
 /oU/ /sò/ 'basket' vs. /'soU/ 'basket' +prom.m.
 /òâ/ /wò/ 'to follow' vs. /'wòâ/ 'followed'

3.6.9.

- /e/ vs. /i/ see 3.6.2.
 /è/ /nen/ 'my eye' vs. /nèn/ 'it's me who'
 /ae/ /eh/ 'to measure' vs. /aeh/ 'your tooth'
 /â/ /'leI/ 'turis' vs. /'lâI/ 'a piece'

/ao/ /se/ 'to come' vs. /sao/ 'winding'
 /ò/ see 3.6.8.
 /ù/ see 3.6.5.
 /i/ see 3.6.1.
 /a/ /weT/ 'place' vs. /waT/ 'sun'
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /eI/ /we/ 'to go' vs. A/'weI/ 'piece of land (with fruit trees)'
 /èI/ /we/ 'to go' vs. /'wèI/ confirmation

3.6.10.

/è/ vs. /î/ see 3.6.2.
 /ae/ /kêl/ k.o. tuberous plant, "keladi hutan" vs. /kael/ 'rust'
 /â/ /mê/ 'for, with' vs. /mâ/ 'to leave'
 /ao/ /lê/ 'to pass by' vs. /lao/ 'loose'
 /ò/ see 3.6.8.
 /ù/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ see 3.6.9.
 /a/ /'leI/ raja vs. /'laI/ 'date palm' *Phoenix dactylifera*
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /eI/ /bê/ 'locust' vs. /'beI/ 'no, not'
 /èI/ /wê/ 'blood' vs. /'wèI/ exclamation 'yes.'

3.6.11.

/a/ vs. /î/ see 3.6.1.
 /è/ see 3.6.10.
 /ae/ /ah/ 'your faeces' vs. /aeh/ 'your tooth'
 /â/ /saK/ 'grass' vs. /sâK/ 'old, grown up'
 /ao/ /sa/ 'to chew' vs. /sao/ 'winding'
 /ò/ see 3.6.8.
 /ù/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ see 3.6.9.
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /aa/ /'aI/ 'take' vs. /a'aI/ 'you take'

3.6.12.

- /â/ vs. /î/ see 3.6.2.
 /ê/ see 3.6.10.
 /ae/ /âh/ 'eat' vs. /aeh/ 'your tooth'
 /ao/ /sâ/ 'tackle for catching shrimps' vs. /sao/ 'winding'
 /ô/ see 3.6.8.
 /û/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ see 3.6.9.
 /a/ see 3.6.11.
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /aa/ /'âI/ 'your vagina' vs. /a'aI/ 'you take'

3.6.13.

- /ae/ vs. /î/ see 3.6.2.
 /ê/ see 3.6.10.
 /â/ see 3.6.12.
 /ao/ /wae/ 'mango' vs. /wao/ 'to happen'
 /ô/ see 3.6.8.
 /û/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ see 3.6.9.
 /a/ see 3.6.11.
 /o/ see 3.6.7.
 /u/ see 3.6.4.
 /eI/ /lae/ 'top, end' vs. /'leI/ 'turis'
 /êI/ /lae/ 'top, end' vs. /'lêI/ raja

3.6.14.

- /ao/ vs. /î/ see 3.6.2.
 /ê/ see 3.6.10.
 /ae/ see 3.6.13.
 /ôe/ see 3.6.12.
 /ô/ see 3.6.8.
 /û/ see 3.6.5.
 /i/ see 3.6.1.
 /e/ see 3.6.9.
 /a/ see 3.6.11.

/o/ see 3.6.7.

/u/ see 3.6.4.

/oU/ /sao/ 'winding' vs. /'soU/ 'burnt down'

/ôU/ /sao/ 'winding' vs. /'sôU/ 'basket' +prom.m.

/aU/ /sao/ 'winding' vs. /'saU/ 'I do not know'

/âU/ /sao/ 'winding' vs. /'sâU/ 'ravine, waterfall'

/aoa/ /wao/ 'to happen' vs. /'waoa/ 'happened'

TABLE 7
Distinctive Feature Matrix of Woisika

	p	b	P	m	f	w	U	t	d	T	n	r	s	l	j	I	k	g	K	ŋ	h	i	ʔ	e	ê	ae	a	â	ao	o	ô	u	û	
continuant	-	-	-	+	+	+	+	-	-	-	+		+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
articulator	L	L	L	L	L	L	L	D	D	D	D	D	D	D	P	P	G	G	G	G	g													
obstructed	+	+	+	-	+	-	-	+	+	+	-	+	+	+	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ballistic	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-													
voiced	-	+	o	+	-	+	+	-	+	o	+	+	-	+	+	+	-	+	o	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
nasal	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-													
lateral	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-													
quantity	-	-	-	-	-	-	o	-	-	-	-	-	-	-	-	o	-	-	-	-	-	+												+
tongue height																						h	h	m	m	l	l	l	l	m	m	h	h	
tongue position																						f	f	f	f	f	f	c	c	b	b	b	b	
roundness																						-	-	-	-	-	-	-	+	+	+	+	+	
tension																						-	+	-	+		-	+		-	+	-	+	

Features which depend on surrounding features (bound variation) are disregarded in the matrix. The same holds for free variation, e.g. in /h/, 'g' is taken as distinctive feature; 'G' can always be replaced by 'g' but not vice versa (see par. 3.2.5.). In /g/ '-c' is distinctive [g] can always be substituted for [ɣ] (see par. 3.2.4.2.). A blank indicates that absence or presence of the feature in question is redundant. 'o' signifies neutralisation. See 2.8.

4. STRESS AND INTONATION

4.1. A satisfactory treatment of stress and intonation phenomena in Woisika awaits further study. In the present paper only certain basic points are discussed.

Stress in Woisika is culminative; a syllable carrying the stress is more prominent as compared to its contiguous syllables. It operates in minimal accentual units (m.a.u.), i.e. "a string of syllables of which one and only one at a time [...] carries a prominence peak" (Ebeling 1968:138). A grammatically independent form may or may not coincide with a minimal accentual unit:

In [na'ma·] there are two independent forms /na/ 'I' and /mâ/ 'to go' but only one minimal accentual unit /na'mâ/. On the other hand [ka'te·ta] consists of one independent form: /ka'têta/ 'food'. In /i'wâ/ 'our mouth' the phoneme /â/ is characterised by its degree of aperture, the absence of roundedness (as compared to /wô/ 'to follow') and tenseness (as compared to /iwa/ 'your feet'). These features are inherent features of /â/: they are established by comparing them with other features in *absentia*, i.e. features admissible in the same position in the sequence.

The fact that /â/ in the minimal accentual unit /i'wâ/ is more prominent than the preceding /i/ is not an inherent feature of this phoneme but of the very unit as a whole. /â/'s prominence is conditioned by the presence of another vocalic segment in the same unit. It is a configurational feature of /â/ since it is established in comparison with another segment or segments in *praesentia*. Consequently /'/ (written before the syllable carrying the prominence peak) here actually signals the proportional relationship between the various syllables which together occur in the same unit.

Features expressing a proportional relationship between two (or more) syllables within the same unit are inherent to the unit itself: /i'wâ/ 'our mouth' is opposed to /i'wâ/ 'our egg'. Other examples are:

/wa'jî/ 'leprosy' vs. /'wajî/ 'under the goat'
 /i'bû/ 'to abuse you' vs. /'ibû/ k.o. head-dress (used by men only)
 /'sâpatu/ 'Saturday' vs. /sa'patu/ 'shoe'
 /'sijâ/ 'our stool' vs. /si'jâ/ 'we go'

These examples show that the place of the stress (or in terms of this paragraph: the proportional relation between the syllables in the minimal accentual unit) is distinctive. The stress in Woisika is free. Its place is unpredictable in basic words (i.e. non-composed words without affixes) which consist of two or more syllables. Basic words consisting of three or more syllables with final stress are very sporadic.

Examples:

Initial stress:

/ 'sibe/ 'chicken'
 / 'tanâ/ 'not yet'
 / 'beInâ/ 'no'
 / 'ine/ 'to plait, to twine'
 / 'toKtakda/ 'to make a noise, be noisy'

Final stress:

/ ta'fô/ 'to wrap up'
 / i'seI/ 'meat'
 / ta'râ/ 'bean'
 / ta'pûI/ 'immoral'
 / ta'puI/ 'crab'
 / su'e/ 'to cane'
 / i'ten/ 'ripe'
 / a'ti ~ a'tî/ 'firewood'
 / ma'teT/ 'sure'
 / ma'ruK/ 'short, small'

Penultimate stress:

/ si'lota/ 'to stretch'
 / i'tenta/ 'ripe'
 / ga'miŋtâU/ 'to ask for help'
 / li'kila/ 'to carry over one's shoulders'
 / la'mata/ 'greedy'
 / wa'waIsin/ 'to hope for, to expect'
 / u'makî/ 'barred button quail' *Turnix suscitator* (Gmel.)

The position of the stress is predictable in a limited though very frequently occurring set of instances: certain prefixes among others personal prefixes of the /e, ê, o, ao/ series and the prefix /mi/ always attract the prominence peak to themselves:

/ ka'tê/ 'to eat'
 / 'mikatê/ 'to eat again, repeatedly'
 / 'netewe/ 'I would like to go inside the house'
 but / na'tewe/ 'I go inside the house'
 / 'nêtewe/ 'to go to look for me'
 / ka'wâI/ 'to speak'
 / 'nekawaI/ 'I would like to speak'
 / 'naokawâI/ 'to greet me'
 / 'jetokawâI/ 'they speak together'

'nokawâI/ 'to quarrel because of me'
 but */naka'wâI/ 'I speak'*

In these cases the place of the stress contributes to the delimitation of the words.

Accentual doublets occur:

/ma'ne ~ 'mane/ 'village'
/'altɪŋ ~ al'tɪŋ/ 'ladder'

4.2. Minimal accentual units are the basic entities, the building blocks, in the prominence organisation of the utterance. They can be words or longer stretches and they are combined with other monosyllabic or polysyllabic words so as to form accentual units of a higher level (accentual frames). Some unit may be more or less prominent than another unit in the same accentual frame. This depends predominantly on syntactic and pragmatic factors (e.g. basic patterns of word order, topicalisation, emphasis) and intonational factors (e.g. rhythmic patterns, intervals, etc.).

M.a.u. are formed by means of two different types of words:

- (A) words consisting of two or more syllables (open class)
- (B) words consisting of one syllable

The latter group is subdivided into:

- (B1) words which never carry the stress (closed class)
- (B2) words which have the potential to receive stress when combined with other (B) words (open class)

Below some examples: the list is not exhaustive.

- (A): */'wobâ/ 'to make'*
/'wobâma/ 'made'
/'wobântanoUkaŋ/ 'probably made'
/na'taŋ/ 'my hand'
/na'taŋmi/ 'in my hand'

to this category also belong words with /I/ or /U/: e.g.

/'aI/ 'to take'
/'mâU/ 'who'

- (B1): (1) personal pronouns (short forms) of the /a/ series:

*/na, a, ga, si, mi, i/*¹³

- (2) idem with suffix /I/ for slight emphasis:

*/nal, al, gal, sil, mil, il/*¹³

(3) prepositions such as:

/jâ/ 'to'

/se/ 'as far as, into'

/mê/ 'in the direction of'

(4) the adhortative /ka/

(5) the numerals /noK/ 'one', /oK/ 'two' and /su/ 'three'

(6) /mê/ instrumental marker

(B2): (1) monosyllabic words such as:

/dol/ 'valley', /dum/ 'child', etc., /mâ/ 'to go, to leave',

/jâ/ 'to go', /te/ 'to ascend', /fe/ 'to descend', /me/ 'to come', /we/ 'to go', etc.

(2) particles such as:

/lôn/ 'only'

/kul/ (1) 'again', (2) 'it is necessary'

/an/ 'in this/that way'

/kô/ 'continuously'

(3) the emphatic personal pronouns: in /-ŋ/:¹³

/nêŋ/ 'it is I who ...' /sîŋ/ 'it is we(incl.) who ...'

/êŋ/ 'it is you who ...' /nîŋ/ 'it is we(excl.) who ...'

/jêŋ/ 'it is he who ...' /îŋ/ 'it is you who ...'

The following combinations are found in minimal accentual units:

(1) A

(2) B + A, A + B

(3) B₁ + B₂, B₂ + B₁, B₂ + B₂

In (2) B stands for one word or a sequence of words. The same holds true for B₁ in (3).

B₂ words in combination with B₁ or B₂ words are never relevantly stressed when there is an A word that belongs to the same minimal accentual unit, see par. 4.3. example no.3.

Below I list the most frequent types of minimal accentual units as attested in the texts. An (A) word is written separately, i.e. set off by blanks, when it constitutes a minimal accentual unit on its own. (A) and (B) words are hyphenated when they are constituents in a minimal accentual unit.

(2) B + A

B₁ + A /ni-mê-'kâhpuI/ 'we go in the direction of Kahpu'

/na-'âpuI 'wôI 'fewe/ 'I go down to Apui'

/nal-'nenaka 'jêbâsi/ 'I tell my older relatives'
 /ga-'mijawâlsi/ 'he returns'
 /al-'lomsî/ 'you say, speak'
 /ja-'akasi/ 'he in this way'
 /ka-si-'mâsi/ 'let's go.'
 /se-ma'nemidama/ 'came to the village'
 /se-sa'kolasi/ 'into school'
 /jâ-'mâUman/ 'to Maumang'

B₂ + A /lôn-'ewatu 'nukun̄kon/ 'but you'll get one day only'
 /'saPt̄u kul-'miawâl/ 'on Saturday you must be back'
 /na-kô-'mijafâh/ 'I am looking for them continuously'

A + B₁ /'kine-noK/ 'one knife'
 /'kine-mê/ 'with a knife'
 /'kuI-noK-kô 'kaTsi/ 'a dog barks continuously'

A + B₂ /'nâte-lôn/ 'or only'
 /si-'oI-te/ 'we went up via that place'

B₁ + B₂ /mê-'dol/ 'in the direction of the valley'
 /mê-'nen/ 'to give to me'
 /na-'te/ 'I go up'
 /na-'jâ 'nenaka 'jêbâsi/ 'I go and tell my older relative'
 /ni-'kô 'mimâ/ 'we walked and walked'
 /jâ-'te/ 'until ascending'
 /si-'an/ 'we in this way'
 /si-'an-mâ/ 'we go in this way'

B₂ + B₁ /'dum-oK/ 'two children'

B₂ + B₂ /'gannoK 'kuI-pil/ 'they both lead the dogs'
 /'wuŋ-tâm/ 'to cook'

4.3. Whenever a B₂ word or a sequence of B₂ words occurs between two A words, no generalisations are possible as to the assignment of these words to the respective accentual units. Semantic as well as formal factors play a role here.

In (1) /'sinaUtlê jâ-'pâsarmida/ 'our female relatives go to the market' /jâ/ belongs to the final unit, but in

(2) /'kuja-fuŋ 'kaTsi/ 'the dogs bark below' /fuŋ/ is definitely part of the initial unit. An example of a formally conditioned constraint is furnished by:

- (3) /ga-i'lehsibo lôŋ-mê-an-se'bâraŋ/ 'he drew his bow and simply shot at random'

Here the connective /-bo/ precludes inclusion of (B) words in the unit of which itself is a constituent. What has been said about A + B₂ + A sequences also holds true for the establishment of the stress in minimal accentual units consisting of B₂ + B₂ sequences. As a general rule we could say that in B₂ sequences the stress tends to fall on the most initial B₂ word in the unit.

/a-'kul-lôŋ-mâ jâ-'pâsarmidasɪ?/
'Are you going to the market again?'

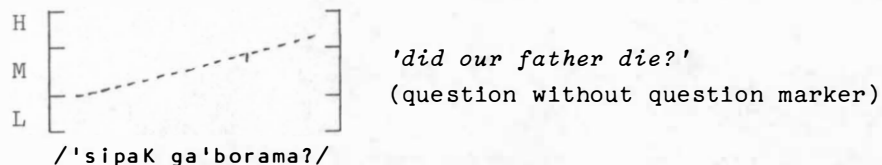
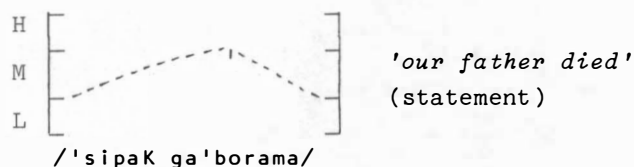
Sometimes a B₂ word does not fit at all into a minimal accentual unit, but stands on its own as a separate minimal accentual unit, e.g. /kaŋ/ 'good, fine; O.K.', in

/na-'jâ 'guru 'jêbâmente, 'kaŋ/
'I went to the teacher and told him about it; he gave his consent'

and in

/'joU, 'kaŋ/
'yes, O.K.'

4.4. In Wolsika the relation between stress and intonation is evident. In the contour one or more elements stand out because it/they form(s) the locus of the intonation change. The locus coincides always with the stressed syllable of that minimal accentual unit which is foregrounded, be it for syntactic reasons (organisation of the utterance) or for pragmatic reasons (organisation of the given/new organisation). See the following simplified and rather impressionistic examples:





'did our father die?'

(question with question marker; onglide or offglide is irrelevant; the locus is distinctive)

/ʼsipaK gaʼboranpiʔ/

Intonation contours are not co-extensive with grammatical units but tend to coincide with the accent-frame. They are superimposed on the prominence hierarchy of the utterance. In a frame such as:

/a-ʼjâ ʼpâsarmidante/ *'you go to the market first'*

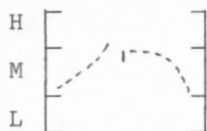
there are two minimal accentual units: /a-ʼjâ/ and /ʼpâsarmidante/ of which the latter carries the distinctive prominence peak.

The frame may carry several intonational contours, e.g.:

with rising glide in /jâ/, falling glide in /ʼpâ-/; rising glide in both, falling glide in /jâ/, rising glide in /ʼpâ-/; which may yield all kinds of additional information about the speakers attitude. However, never in an unambiguous way; a change in the proportional prominence may yield a different meaning, a change in the intonation contour hardly ever does so. The only possible case where a contour may be functional is furnished by instances such as

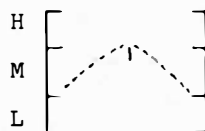
(1) /na-ʼmâ/ *'I go'* vs. (2) /naʼmâ/ *'my voice'*

In normal speech these utterances are always homophonous but they could be distinguished in very slow, deliberate speech by different contours, approximately in this way (with a concomitant facultative interval in (1)):



(1) [naʼmâ·]

vs.



(2) [naʼmâ·]

Longer stretches may be disambiguated by the melodic configurations but then it is only a very secondary means. The different accentual makeup of the frames are here the decisive factor (the distinctive prominence peaks in the frames are underlined):

(3) [aʼtej-ba·j] *'big bird'* vs. (4) [aʼtejba·j] *'star'*

/aʼteI ʼbâI/ vs. /aʼteIbâI/

(5) [siʼjâ·kaʼri·ʼmiwôba·siʔ] *'we'll repair the house'* vs. (6)

[siʼjâ·kaʼri·miʼwôba·siʔ] *'we'll do it in the house'*

/si-ʼjâ kaʼrî ʼmiwôbâsi/ vs. /si-ʼjâ kaʼrîmi ʼwôbâsi/

4.5. ABSENCE OF DISCRETENESS OF INTONATIONAL FUNCTIONS

I have not found a set of intonational features which enables the informant without additional semantic and syntactic information to distinguish unambiguously between, say, a question and a statement. Of course, there are more or less fixed basic intonation patterns. Generally speaking we are not far from the truth if we say that the contour descends in the latter case and ascends in the former (see instances given above in par. 4.4.). But there are many questions (with or without question markers or question words) which are uttered with a non-ascending contour and many statements which have a non-descending contour. Much, again, depends on the internal organisation of the utterance, the markers used or their relative position (ordering patterns). Moreover, many non-linguistic factors may influence the modulation. For that reason I do not assign intonational phenomena a distinctive status but consider them to be expressive features; they express the speaker's emotional attitude. Further investigation is needed here.

In longer stretches, especially in the text, I write a full stop (followed by a blank) whenever I am reasonably certain, on the basis of the meaning of the utterance, that it is completed.

Additional facultative demarcative phenomena may incidentally help in the establishment of the boundaries:

- 1) the accentual frames
- 2) a completed contour
- 3) a cessation in the speech-flow
- 4) lengthening of pre-pausal tense vowels and abrupt off gliding
in the pre-pausal lax vowels
- 5) abrupt onset in post-pausal vowels

Needless to say that these phenomena are never sufficient *per se* to establish the sentence boundaries: incompleting contours occur with meaningful utterances. Pauses occur everywhere: even within words, but also, of course, in places where they may be said to corroborate the impression given by other features (such as 1) or 2)) that they isolate parts of the speech chain in a meaningful way.

For the time being I shall say that the full stop signals conclusiveness, whereas '?' and ',' indicate inconclusiveness. The comma then means that additional information is to be expected from the speaker, the question-marker that the speaker expects a reaction (from the hearer, for instance). The same is expressed by '...' after a so-called appellative marker (/na/):

/gal-su'eUna .../

'he'll come, so ... (what am I to do, or what are you going to do about it?)'

For /!/ see par. 7.

5. VARIANT FORMS

5.1. According to a first provisional dialectal inventarisation (Stokhof 1975b), my informants are speakers of two different subvariants of the Ateita variant. A.A. (from Manegeng VI 2.3) and J.L. (from Susimang VI 2.4) show very slight differences as compared with M.M. (Maumang VI 3.1), L.K. (Maumang) and R.L. (Puiwela VI 3.4).

Since a detailed survey of the geographical linguistic situation in the Woisika area is planned in the near future, I mention here only a few general correspondences.

It was sometimes easy to assign a certain phenomenon to a certain person or set of persons since the informants themselves were quite well aware of certain peculiarities: e.g. VI 2 /'molko/ VI 3 /'boŋko/ 'cassava' (*Manihot utilissima*).

In other cases this appeared to be impossible, since features which were said or assumed to be geographically conditioned turned out to be attested in all informants. We were sometimes confronted with doublet forms used with equal frequency by all of them, sometimes with first choice and second choice forms, the latter being accepted but not (frequently) pronounced. It happens that two informants from the same area may each use and accept a different variant of one and the same word, whereas a third informant originating from the very same place uses both variant forms without hesitation. These inter-systemic developments must be explained by the mutual influence due to the increased mobility of the Woisika speakers, by the fact that the younger Woisika people originating from different villages often group together during their school years when in areas outside their home country and finally by the influence of their mothers who almost always come from a different village. On the other hand doublet forms as a result of intra-systemic developments also occur and I found it often difficult to decide what kind of phenomenon I was dealing with.

Andreas' mother comes from Maumang (VI 3.1), Linus' mother from Takaikul (VI 3.2), Markus' mother from Ateita (VI 4.1), Ruben's mother from Pukeng (VI 1.1), while data from Johanese are lacking. It is my impression that the speech of R.L. stands a little apart from that of the others. L.K. considers him to be the most conservative speaker among the informants. He shows certain influence from the first subgroup

(IV 1) but on the other hand uses easily forms from the second subgroup. This is explained by the fact that he lived for a long time in Johannes' village. R.L. is the only informant who has certain innovations in his speech as compared to the others. For instance, he pronounced Malay loans with word initial [r] without a preceding low central vowel (a pronunciation which is rejected by everybody else; to my knowledge original Woisika words never begin with [r] in the Ateita variant (see par. 8.2.1.)).

Below a few general rules are given which allow few exceptions, however, these will be discussed in the forthcoming paper on variant distribution. The forms (1), (2) and (4) are consequently used by the respective speakers, rule (3) tends to be less adhered to.

5.2. SOUND CORRESPONDENCES BETWEEN VARIANTS IV 2 AND IV 3

(1) R, L, M /ô, o/ correspond to A, J /û, u/ in words such as:

/'môI/	/'mûI/	'banana'
/'wôI/	/'wûI/	'to choose'
/'fôI/	/'fûI/	'taboo'
/'foI/	/'fuI/	'to dream'

(2) R, L, M clusters of vel. plosives correspond to A, J /l/ + plosive:

/aT'tiŋ/	/a'l'tiŋ/	'ladder'
/'kuTton/	/'kulton/	'jackfruit' (<i>Artocarpus integrifolia</i>)
/'liKka/	/'lilka/	'solid, firm, tight'

(3) R, L, M /u/ correspond to A, J /i/:

/si'baI/	/su'baI/	unidentified plant, k.o. millet (?) Malay deli
/bi'lel/	/bu'lel/	'sweet potato' (<i>Ipomoea batatas</i> Poir)
/sil/	/sul/	'to close (a door, etc.)'
/si'e/	/su'e/	'to come'
/'wokileh/	/'wokuleh/	'to roll down the foreskin'
/si'paka/	/su'paka/	'new'
/ka'til/	/ka'tul/	'to accuse'
/'tiŋbaK/	/'tuŋbaK/	'to pray'

(4) R, L, M /#û/ corresponds to A, J /#wu/:

/ûŋ/	/wuŋ/	'pan, pot'
/'ûtiŋ/	/'wutiŋ/	'post' (see Stokhof 1977:23)
/'ûra/	/'wura/	'pigeon, k.o. turtledove'

N.B. R also /uŋ/

(5) R, L, M /w/ is deleted in A, J after a /a/ before /uI/:

/la'wuI/ /la'uI/ '*criminal, enemy*'
 /ta'wuI/ /ta'uI/ '*loose, crumbled earth*'
 N.B. L also /'taoI/

5.3. Below a few particular forms are mentioned attested in R.L. as compared with those of the other informants:

(1) Free variation between /n/ and /ŋ/ before /t/ in certain forms in contrast with the other informants who have /ŋ/:

R /lôn'tontanoU ~ lôn'tontanoU/ '*what about*' vs. /lôn'tontanoU/
 R /aT'tintâ ~ aT'inqtâ/ '*on the ladder*' vs. /a'l'tinqtâ/
 R /'antumŋ ~ 'antumŋ/ '*over there*' vs. /'antumŋ/
 R /na'lônŋton mânte? ~ na'lônŋton mânte?/ '*in which direction do I go then?*' vs. /na'lônŋton 'mânte?/
 Note A.A. sometimes pronounced /a'tintâ/ along with /a'tinqtâ/
 M shows /'tunsama/ /'tuŋsama/ (along with /'tinsama/) '*yesterday*'

(2) R /awe/ and /ae#/ (disyllabic sequences) correspond to /ae/ (monosyllabic sequence):

R /ga'weŋ/ '*to differ*' vs. /gaen/
 R /'lawe/ '*top (of stick, etc.)*' vs. /lae/
 R /'wae/ '*mango*' vs. /wae/
 R /'gaeta/ (3 syllables) '*wry (neck), crooked (houses)*' vs. /'gaeta/ (2 syllables)
 R /ta'weh/ '*teeth*' vs. /taeh/
 R /ka'weŋpaI/ '*tumeric*' *Curcuma domestica* vs. /'kaenpaI/

(3) R # Ø ~ /#w/ ~ /#g/ in loanwords vs. the others /#w ~ #g/:

R /'ula ~ 'wula ~ 'gula/ '*sugar*' vs. /'wula ~ 'gula/
 R /'uru ~ 'wuru ~ 'guru/ '*teacher*' vs. /'wuru ~ 'guru/

(4) R # Ø ~ /#a/ in loanwords in initial /r/ vs. the others /#a/:

R /'rupia ~ a'rupia/ *rupiah*
 R /'ruh ~ a'ruh/ '*spirit*'
 R /'roti ~ a'roti/ '*bread*'
 R /'romo ~ a'romo/ '*priest*'

Note A.A. pronounced once /a'ranta/ '*a criminal*' as /'ranta/ and /a'râku/ '*young pumpkin*' as /'râku/

5.4. In the following paragraphs two correspondences are given between L.K. vs. the others:

(5) /Uŋbo ~ wuŋbo/, /Iŋbo ~ jiŋbo/. These forms arise as a consequence of the different realisation of the archiphonemes /U/ (→[ũ, ỹ]) and /I/ (→[ĩ, ĩ]), respectively:

/simitatâUŋbo, 'simitatâwuŋbo/ from /simitatâU/ 'we meet and ...'

/ka'wâIŋbo, ka'wâjiŋbo/ from /ka'wâI/ 'to speak and ...'

See par. 3.4.4.

(6) /'ea ~ 'ê/, /'ia ~ 'î/ in personal prefixes:

/'nearâ ~ 'nêrâ/ 'my pumpkin' /'siarâ ~ 'sîrâ/ 'our(incl.) pumpkin'

/'jeateI ~ 'jêteI/ 'his bird' /'niateI ~ 'nîteI/ 'our(excl.) bird'

/'eawoI ~ 'êwoI/ 'your(sg.) line' /'iawoI ~ 'îwoI/ 'your(pl.) line'

also /'jeorantua ~ 'jôrantua/ 'his older relatives'

(7) /i# ~ i#/ in nouns:

/'nêtî ~ 'nêti (≈ 'neatî ~ 'neati)/ 'this firewood of mine' from

/aT/ 'firewood'

/'i'llî ~ 'i'lli/ 'the water' from /il/ 'water'

/'yêlî ~ 'yêli (≈ 'jealî)/ 'its roots' from /a'llî/ 'root'

/'nêmî ~ 'nêmi (≈ 'neamî ~ 'neami)/ 'my breast' from /am/ 'breast'

(8) /VaK# ~ VêK#/:

/ma'neaK ~ ma'nêK/ 'this village'

/su'eaK ~ su'êK/ 'this coming'

(9) /e ~ o/ in certain words:

/ga'reT ~ ga'roT/ 'to cut'

/'deliŋ ~ 'doliŋ/ 'sky'

(10) /e# ~ a#/ in a small category of verbs, especially in the imperative:

/'ide ~ 'ida/ 'to roast; roast!'

/fe ~ fa/ 'to go down; go down!'

/'sine ~ 'sina/ 'to plait; plait!'

/'sire ~ 'sira/ 'to clean, to wash; wash!'

/'ite ~ 'ita/ 'to fill; fill!'

/'foIne ~ 'foIna/ 'to dream; dream!'

/se ~ sa/ 'to chew; chew!'

and a few others.

(11) /a/ ~ /o/ in two verbs:

/'ako ~ 'oko/ 'to be near to the speaker' (spatially or psychologically)

/ʼaŋo ~ ʼoŋo/ 'to be near to the addressee' (spatially or psychologically)

5.6. For idiolectal variants such as:

R /ʼsaUkoI/, L, A /ʼsaIkoI/, J, M, A /saUkuʼleI/ *k.o. lizard*
(Scincidae)
 L /ʼnepa, ʼnepâ/ 'my older male relative'
 J /ʼkera/, M /ʼkara/, R, L /ʼkare/ 'jacket'
 L /ʼkaUpaI/, A /ʼkaUpaU/ 'buffalo'
 M /ʼkusiŋ/, R, L /ʼkuIsiŋ/ 'fingernail'
 L /mûT/, A, M /mû/ 'citrus fruit'
 J /baʼlinti/, L, A, M, R /baʼlinta/ 'to pass by'
 /naʼyâ/, /nâ/ 'I go', /ʼnenuâ/, /ʼnenâ/ 'my things, paraphernalia'
 L /ʼtutewe, ʼtitewe/ 'to be going down', L /ʼmane, maʼne/ 'village'
 etc. I refer to the dictionary.

6. LOANWORDS

6.1. Wosika is not yet affected by Indonesian or Kupang Malay. There is a restricted number of borrowed words which in fact seem to be quite recent. There are also some Dutch and Portuguese loans which have filtered into the language through Malay.

Dutch instances are:

/kôl/ 'cabbage' K.M. kol, Dutch kool
 /tôn/ 'barrel' K.M. ton, Dutch ton
 /bâl/ 'ball' K.M. bal, Dutch bal
 /ʼkârel/ 'Charles' K.M. Karel, Dutch Karel
 /sen/ 'money' K.M. sen, Dutch cent
 /baʼlek/ 'tin' K.M. balek, Dutch blik
 /ʼbaskom/ 'washing-tub, wash-basin' K.M. baskom, Dutch waskom

Most loans have not undergone changes but are accepted in the form in which they are used in the original language:

K.M.	W		Ind.
bayam	/ʼbayam ~ ʼbayem/	'spinach' <i>Amaranthus Spinous</i>	bayem
kertas	/karʼtas/	'paper'	kertas
parenta	/paʼrenta/	'government'	perintah
balek	/baʼleK/	'tin'	blek
sapatu	/saʼpatu/	'shoe'	sepatu
barenti	/baʼrenti/	'to stop'	berhenti

K.M.	W		Ind.
kantang	/kan'taŋ/	'potato'	kentang
salasa	/sa'lasa ~ sa'lâsa/	'Tuesday'	selasa
sakola	/sa'kola/	'school'	sekolah
pati	/pa'ti ~ pe'ti/	'box'	peti
salom	/sa'lom/	a term of greeting	syalom
bapa	/'bapa/	a referential term of address to a man	bapak
jam	/djam/	'o'clock, hour' (in educated speech)	jam
calana	/tja'lanā/	'trousers' (in educated speech)	celana
gula	/'gula/	'sugar' (in educated speech)	gula
guru	/'guru/	'teacher' (in educated speech)	guruh
surat	/su'raT ~ su'roT/	'letter, book, writing'	surat

6.2. In other cases there is an adaptation of the borrowings (especially in the speech of the uneducated):

(1) K.M. [t^j] > W [s]

K.M.	W		Ind.
[t ^j et-]	[sɛt-]	'paint'	/seT/ cat
[par't ^j ajα]	[par'sajα]	'to believe'	/par'saja/ percaya
[t ^j ar'min]	[sar'min]	'mirror'	/sar'min/ cermin
[t ^j a'lanα]	[sa'lanα]	'trousers'	/sa'lanā/ celana
[t ^j a'mat-]	[sa'mat-]	k.o. civil servant	/sa'maT/ Camat

Educated speakers show along with a /tj ~ s/ alternation (see par. 3.1.4.), also a tendency to /a ~ e/ alternation before /r, l/ due to school pronunciation.

(2) K.M. [d^j] > W [j]

K.M.	W		
[d ^j am]	[jam]	'o'clock, hour'	/jam/
['d ^j ala]	['jala]	'fishing-net'	/'jala/
[sa'd ^j ara]	[sa'jara]	'history'	/sa'jara/
['d ^j umat-]	['jumat-]	'Friday'	/'jumaT/

Exception:

['med ^j α]	['mera]	'table'	/'mera/
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An adaptation K.M. [d^j] > W [j ~ g] is found in two cases. This is explained by the fact that in W the /j/ often functions as basic phoneme in relation to the heavy phoneme /g/ (see par. 3.1.3. and below (3)).

- K.M. W
 ['dʒala] ['jala ~ 'gala] 'fishing-net' /'jala, 'gala/
 [sa'dʒara] [sa'jara ~ sa'gara] 'history' /sa'jara, sa'gara/
- (3) K.M. [g] > W [g ~ j] before unrounded vowels:
 K.M. W
 ['gaga] ['gaga ~ 'jaja] 'crow' *Corvus macrorhyncus* /'gaga, 'jaja/
- (4) K.M. [g] > W [g ~ w ~ ɔ] before rounded vowels:
 K.M. W
 ['gula] ['gula ~ 'wula ~ 'ula] 'sugar'
 ['guru] ['guru ~ 'wuru ~ 'uru] 'teacher'
- (5) K.M. [m, n] > W [ŋ] before N and word-finally:
 K.M. W
 ['lampu] ['lāŋpu] 'lamp, light' /'lanpu/
 ['dansa] ['dāŋsa] 'dance' /'dan̩sa/
 ['tuʰan] ['tuʰāŋ] term of address/reference to white male /'tuʰan/
 [sɛn] [sʲɛŋ] 'money' /sɛn/
 ['sɛtan] ['sɛtāŋ] 'bad spirit' /'setan/
- (6) K.M. [d] > W [d ~ r] between bowels:
 K.M. W
 ['kuda] ['kuda ~ 'kura] 'horse' /'kuda/
 [sa'pɛda] [sa'pɛda ~ sa'pɛra] 'bicycle' /sa'pɛda/
- (7) K.M. [ɔ] > W [u ~ ɔ] in the speech of the educated:
 K.M. W
 ['angɔr] ['angor ~ 'angur] 'wine' /'angor, 'angur/
 [a'tɔr] ['atɔrda ~ 'aturda] 'to organise' /'atɔrda, 'aturda/
 [rɔh] [a'rɔh ~ a'ruh] 'spirit' /'arɔh, 'aruh/
- (8) K.M. [V·] > W [Vl ~ Vt]:
 K.M. W
 ['su·sa] ['wɔsu·sa ~ 'wɔsusa] 'to be in distress' /'wɔsûsa, 'wɔsusa/
 [pɑ·sar] ['pɑ·sar ~ 'pasar] 'market' /'pâsar, 'pasar/
 ['kɑ·pal] ['kɑ·pal ~ 'kapal] 'launch, motorboat' /'kâpal, 'kapal/
 [sa'la·sa] [sa'la·sa ~ sa'lasa] 'Tuesday' /sa'lâsa, sa'lasa/
 ['sa·la] ['sa·la ~ 'sala] 'mistake' /'sâla, 'sala/
 ['kɑ·rɛl] ['kɑ·rɛl ~ 'kareɪ] 'Charles' /'kâreɪ, 'kareɪ/
 [tɑ·s] [tɑ·s ~ tas] 'bag' /tâs, tas/

6.3. Though the Malay influence has not been very strong and did not result in new (peripheral phonemes) it caused phonemes to appear in new environments, for instance:

(1) /r/ and /s/ do not occur word-finally in W words except in onomatopoeia:

/ʼalor/	ʼAlorʼ	/tas ~ tâs/	ʼbagʼ
/ʼdokter/	ʼdoctorʼ	/glas/	ʼglassʼ
/ʼaŋwur/	ʼwineʼ	/neʼnas/	ʼpineappleʼ
/ʼnomer/	ʼnumberʼ	/andʼreas/	ʼAndrewʼ
/ʼpantar/	ʼPantarʼ	/karʼtas/	ʼpaperʼ
/ʼmeter/	ʼmeterʼ	/ʼflores/	ʼFloresʼ
		/joʼhanes/	ʼJohnʼ
		/ʼtomas/	ʼThomasʼ

(2) /r/ and /h/ do not occur word-initially in original W words except in interjections and exclamations:

/haK/ ʼrightʼ
/ʼruben/ ʼRubenʼ

(for other examples see par. 8.2.1.)

(3) Intramorphemic clusters consisting of occlusive plus lateral are uncommon in W:

/glas/ ʼglassʼ
/ʼflores/ ʼFloresʼ
/karʼtas/ ʼpaperʼ
/ʼblanda ~ baʼlanda/ ʼHollandʼ
/klas ~ kaʼlas/ ʼclassroom, classʼ
(for other tactical data see par. 8.)

7. EXPRESSIVE FEATURES

7.1. Quantity and aspiration (with facultative breathiness) may create emphasis or indicate the speaker's emotional attitude.

A very long apical trill (in free variation with normal [r, ɾ]) is produced in words such as:

[ar:], [tar:], [dar:] and [kur:]

The first three are onomatopoeias and express the vibration of string and bow immediately after the release of the tension, i.e. when the arrow has been fired.

[kur:] or more often /ʼkurkurkur/ (with normal /r/) is a call note for chickens.

[m:] (with rising-falling pitch) signals disagreement and/or rejection.

Astonishment, pain, etc. are facultatively expressed by a prolongation of the last vowel in [a'do:], [adi 'du:].

Slight aspiration (with facultative breathiness) signalling impatience or anger is attested in highly utilised verb forms such as:

[si'mɑ̃ ^h]	(~ [si'mɑ:])	'let's go!'
[wa'letɪ ^h]	(~ [wa'letɪ?])	'carry!'
[tɛ ^h]	(~ [te:])	'dig!'
['ina ^h]	(~ ['ina?])	'twine!'
[wa ^h]	(~ [wa?])	'go!'
[ma ^h]	(~ [ma?])	'come!'

Whenever I have the impression that expressive features are involved I shall indicate them in the phonemic transcription by an exclamation mark followed by a blank at the end of the utterance:

/ar! /, /dar! /
 /si'mâ! /, /wa'letɪ! /
 /tê! /, etc.

8. SYLLABLE PATTERNS AND DISTRIBUTION OF PHONEMES

8.1. SYLLABLE PATTERNS

8.1.1. The syllable in Woisika is discussed in this section primarily because it is a convenient reference point for the description of the phonotactics.

Sounds which can function as carriers of a prominence peak are syllabic entities; they constitute the nucleus of the syllable. All other sounds form the (prenuclear or postnuclear) margin of the syllable. For Woisika the syllable is defined as a vowel nucleus which may have a periphery of one or two consonants preceding it (the onset) and/or one or two consonants following it (the coda).

The syllabic structure can be summarised as (C1) (C2) V (C3) (C4). Prenuclear margins consisting of two consonants (see below 6, 7) are rare in authentic Woisika words (see 6.3.), but are observed in borrowings (e.g. /glas/ 'glass').

The archiphonemes /I/ and /U/ are treated as consonants in the formula, though their realisations may yield forms with varying syllabicity (see 3, 5, 7, 8). C3 represents these two archiphonemes; no other clusters occur in a postnuclear margin than those with an initial segment in /I/ or /U/. Other restrictions which have been observed in the juxtaposition of the syllable patterns are:

(1) When a single consonant is the only periphery between nuclei it forms the onset of the second nucleus (see 4).

(2) Wherever two or more consonants occur contiguously in intervocalic position the first one is postnuclear and the other(s) is/are pre-nuclear. Exceptions are the C3C4 cluster, which always belongs to the preceding nucleus (see 3, 8) and those forms which are composed with marginal patterns (see 6, 7).

- | | | |
|----------|-----------------|---------------------------------------|
| 1) V: | /â/ | <i>'unhusked rice'</i> |
| | /'da''a/ | <i>'carried on the head'</i> |
| 2) VC: | /aT/ | <i>'firewood'</i> |
| | /an''dre''as/ | <i>'Andrew'</i> |
| 3) VCC: | /'aUh/ | <i>'deer'</i> |
| | /'aUh''a/ | <i>'the deer'</i> |
| 4) CV: | /bâ/ | <i>'fence'</i> |
| | /ka''tê/ | <i>'to eat'</i> |
| | /bi''len/ | <i>'to write'</i> |
| 5) CVC: | /maT/ | <i>'ill'</i> |
| | /'bâI/ | <i>'big, great'</i> |
| | /'ful''pen/ | <i>'fountain-pen'</i> |
| 6) CCV: | /'flo''res/ | <i>'Flores'</i> |
| | /an''dre''as/ | <i>'Andrew'</i> |
| | /'dju''ru/ | <i>'clerk'</i> |
| 7) CCVC: | /glas/ | <i>'glass'</i> |
| | /'smuI/ | <i>'wind'</i> |
| | /djam/ | <i>'o'clock'</i> |
| | /'tjer''min/ | <i>'mirror'</i> |
| | /'ne''glas/ | <i>'my glass'</i> |
| 8) CVCC: | /'ne''naUt''lê/ | <i>'my relatives of opposite sex'</i> |
| | /'ne''naUt/ | <i>'my relatives of opposite sex'</i> |
| | /'kaUh''ta/ | <i>'clod (of earth)'</i> |
| | /'jeIj''â/ | <i>'they go back'</i> |

8.1.2. A count of syllable patterns showed that types 4 and 5 have the highest frequencies:

TABLE 8
Relative Frequency of Syllable Patterns as a
Percentage of the Total Number of Counted Syllables

types of syllable pattern	(1) V	(2) VC	(3) VCC	(4) CV	(5) CVC	(6) CCV	(7) CCVC	(8) CVCC
	7.8	8.3	0.3	55	24.6	—*	—*	4.1

* type (6) and (7) did not occur in the sampling

There are no apparent restrictions on the sequences of syllable patterns that may occur; however, sequences of more than four consecutive V syllables are improbable: /'ne''â''û''a/ *that k.o. bird of mine* is the only instance found thus far which has four nuclei occurring contiguously.

Words of from one to eight syllables occur. Examples are:

- 1) /noK/ *'one'*
- 2) /'jetaK/ *'he runs'*
- 3) /'akasi/ *'in this way'*
- 4) /'jesilaŋbo/ *'it went down and ...'*
- 5) /wa'leTsiloUkaŋ/ *'probably carrying'*
- 6) /ga'bundîntanoUsih/ *'it is hidden so ...'*
- 7) /'wojetolakahloUkaŋ/ *'(will) probably hang together'*
- 8) /ga'rikâidaŋdahaKbo/ *'(was) about to go under the overhanging
brink'*

Most words are polysyllabic. A syllabic frequency count in 2006 words yielded the following percentages:

TABLE 9

number of syl- lables in a word	1	2	3	4	5	6	7	8
relative fre- quency as a per- centage of the total number of words	35.7	34	20.3	7.2	1.8	0.9	0.05	0.05

8.2.1. Distribution of Phonemes

TABLE 10
Consonant Distribution within the Word

	word-initial			word-medial						word-final		
	(1) -V	(2) -CV	(3) C-V	intramorphemical			intermorphemical			(10) V-	(11) V-C	(12) VC-
				(4) V-V	(5) V-CV	(6) VC-V	(7) V-V	(8) V-CV	(9) VC-V			
p	+			+		+	+	+	+	-		
b	+	+		+		+	+	-	+	-		
P	-		-	-	+	-	-	+	-	+		
m	+	+	+	+	+	+	+	+	+	+		
f	+	+		+		+	+		+			
w	+	+		+	-	+	+	-	+	-	-	
U	-	-	-	-	+	-	-	-	-	+	+	-
t	+	+		+	+	+	+	+	+	-		-
d	+	+	+	+		+	+	-	+	-		-
T	-		-	-	+	-	-	+	-	+		+
n	+		+	+	+	+	+	+	+	+		+
r	+		+	+	+		+	+	+	+		
s	+	+		+		+	+		+	+		
l	+		+	+	+	+	+	+	+	+		+
j	+		+	+	-		+	-	+	-	-	
I	-	-	-	-	+	-	-	+	-	+	+	-
k	+	+		+		+	+	+	+	-		-
g	+	+		+		+	+	-		-		-
K	-		-	-	+	-	-	+	-	+		
ŋ				+	+		+	+		+		+
h	+		+	+	+		+	+	+	+		+

+ = attested position

- = phonemically impossible position

blank = a possible but not attested position

Commentary:

/I, U/ and /P, T, K/ and their pertinent phonemes are limited in distribution (see par. 3.4.4. and par. 3.1.2.)

Word-initial /ŋ/ is lacking, so is word-final /f/. /r/ in initial and final position is rare. Only a few loanwords are attested, e.g.: R/'romo/ 'priest', R/'ruben/ 'Ruben', R/'rupia/ rupiah, /'alor/ 'Alor'

/ˈnɒmər/ 'number', /ˈdɒktər/ 'doctor', etc. In addition there are some onomatopoeic words, such as /ar!/, /dar!/, /tar!/ (see par. 7.).

/h/ is rare in word-initial position, it occurs in Malay loans such as /haK/ 'rights', in interjections, e.g. /ha!/, /'hahe/, /'haI/ and in onomatopoeic words such as /'hokhoKda/ 'to lunge at (of dog, swine)', /'hosa/ 'to be short of breath, to be asthmatic'.

Word-final /s/ is encountered in loans only /tas/ 'bag', /an'dreas/ 'Andrew', /na'nas/, /ne'nas/ 'pineapple'.

Consonants occurring word-initially:

/p/	/ˈpaIsan/	'tomorrow'
/b/	/bâ/	'fence'
/m/	/ˈmane/	'village'
/f/	/fe/	'to go down'
/w/	/ˈwâŋkawâ/	'rainbow'
/t/	/ˈtaŋpi/	'cap, top (of bottle)'
/d/	/dol/	'valley'
/n/	/ˈnâte/	'or'
/r/	/ˈroti/	'head'
/s/	/ˈsîma/	'all of us, we all'
/l/	/lam/	'male'
/j/	/ˈjeIjâ/	'they go back'
/k/	/ˈkolkolnâ/	'(very) much'
/g/	/ˈgêIbâI/	'main road'
/ŋ/	-	
/h/	/haK/	'rights'
	/ha!/	exclamation

Consonants occurring word-finally:

/P/	/aP/	'fish'
/m/	/ˈnetâm/	'my relative of second descending or ascending generation'
/f/	-	
/U/	/mâU/	'who?'
/T/	/ˈbiaT/	'four'
/n/	/nîn/	'ours'
/r/	/ˈdɒktər/	'doctor'
/s/	/na'nas/	'pineapple'
/l/	/tol/	'a little, a while'
/I/	/keI/	'wooden skewer'
/K/	/taK/	'to run'
/ŋ/	/kaŋ/	'good, O.K.'
/h/	/fâh/	'to look for'

Consonants occurring word-medially (between vowels):

/p/	/'sipa/	'our older male relative'
/b/	/'nêbâ/	'to inform me'
/m/	/'idama/	'roasted'
/f/	/'nefalaka/	'this cloth of mine'
/w/	/'tewe/	'to go down'
/t/	/i'tunma/	'it became evening'
/d/	/a'dubâI/	'many, much'
/n/	/'ina/	'now'
/r/	/'sirum/	'our child'
/s/	/'baIlasa/	'buying'
/l/	/'sîla/	'to impale'
/j/	/'sîjâ/	'to go to call us'
/k/	/'akasi/	'in their way'
/g/	/'migabel/	'to speak magic formulas'
/ŋ/	/'aŋa/	'that one over there'
/h/	/'ahaK/	'and, thereupon'

In Woisika initial and final clusters are rare, (column 2, 3 and 11, 12 respectively). In initial position they result from:

- (1) Malay borrowings, e.g. /klas/ 'classroom, class'
- (2) vowel deletion in authentic Woisika words, e.g. /'smuI/ 'wind', see par. 3.5.2., 3.5.10., and 3.5.12.

For detailed initial cluster distribution and examples see Table 11.

Since for the sake of convenience /U/ and /I/ are treated here as consonants, a very limited set is found in (11) and (12), e.g. /'aUh/ 'deer'. For detailed final cluster distribution see Table 12.

There are two categories of word-medial intramorphemic clusters (columns 5 and 6):

- (1) those attested in authentic Woisika words,
- (2) those found in borrowings from Malay.

In the first category /I, U/, /ŋ, h, l, n/, /t/ and /T, P, K/ may occur as the initial member. Examples are:

/I/

/It/	/'maItan/	'hungry'
/Is/	/'mâIsiŋ/	'diligent'
/Id/	/ga'reIda/	'to wait'
/Ik/	/'saIkoI/	k.o. lizard
/If/	/'luIfa/	'to twist off'
/Im/	/'waIma/	mokko

/In/	/na'waIna/	'area around the ear'
/Il/	/'weIli/	'in the rear'
/Ib/	/'kaIba/	'bag for sirih pinang used by man'
/U/		
/Us/	/'paUsiŋ/	'present made in return'
/Uk/	/'saUka/	'thin, lean'
/Uf/	/'laUfâ/	village name
/Um/	/'tâUmi/	'where?'
/ŋ/		
/ŋk/	/asiŋku'aI/	'worm'
/ŋp/	/'wotiŋpaK/	'to glow, to shine'
/ŋb/	/'tuŋbaK/	'to pray'
/ŋm/	/'mitamaŋman/	'to part'
/ŋt/	/ga'miŋtâU/	'to ask for help'
/ŋg/	/'goŋgara/	'to bark (of dogs)'
/ŋw/	/'finiŋwâI/	'evening (from ±18.00 till ±22.00)'
/h/		
/hk/	/'newahka/	'my back'
/hl/	/'jahla/	'powder, dust resulting from blight or dry-rot'
/hd/	/'ehda/	'to measure'
/t/		
/tl/	/'tutla/	'to roast in hot ashes (esp. tubers)'
/l/		
/ls/	/tal'siŋ/	'how many, how much?'
/lb/	/'silbara/	'to be/become smooth (of cloth, etc.)'
/lp/	/sil'pêsa/	'hoop, toy'
/lm/	/'almaŋ/	'granary, dwelling'
/lw/	/a'lilwê/	'to lie'
/lk/	/'lilka/	'solid, firm, tight'
/ll/	/'balla/	place name
/lt/	/al'tiŋ/	'ladder'
/n/		
/nt/	/'tintel/	'to melt'
/ns/	/'nênsu/	'I go first'

/T/

/Tb/	/a'Tbul/	'caterpillar'
/Tp/	/'aTpil/	'to burn down'
/Ts/	/'laTsi/	'to stand up'
/Tt/	/'koTta/	name of a moko

/P/

/Pk/	/'taPki'rî/	'spider'
------	-------------	----------

/K/

/Kb/	/'luKbel/	k.o. quail, probably <i>Turmix suscitator suscitator</i> (Gmel.)
/Kt/	/'deKtaŋ/	'lame'

In the second category the following clusters are found:

/lp/	/'fulpen/	'writing pen'
/mp/	/'lampu/	'light, lamp'
/mb/	/bi'limbiŋ/	belimbing, <i>Averrhoa bilimbi</i>
/ns/	/fa'kansi/	'holiday'
/nt/	/pa'renta/	'government'
/nd/	/'ande/	vocative for Andreas
/nl/	/'manlora/	'head of rukun tetangga'
/sk/	/'baskom/	'washtub, washbasin'
/rn/	/'ârnol/	'Arnold'
/rt/	/par'tama/	'first'
/Tf/	/aT'fokat/	'avocado pear' <i>Persea americana</i>
/ŋg/	/'aŋgur/	'wine'
/ŋw/	/'aŋwur/	'wine'
/ŋp/	/'laŋpu/	'light, lamp'
/Pt/	/'saPtu/	'Saturday'
/Kt/	/'doKter/	'doctor'

TABLE 11
Initial Clusters in Woisika

C ₁	C ₂ +	p	b	P	m	f	w	U	t	d	T	n	r	s	l	j	I	k	g	K	ŋ	h
p		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
P					-	-	-	-				-	-	-	-	-	-				-	-
m								-								-	-					+
f					+			-			+			+	+	-	-					
w								-							+	-	-					
U		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
t		-	-	-	+	-	-	-	-	-	-					+	-	-	-	-	-	-
d		-	-	-		-	-	-	-	-	-					+	-	-	-	-	-	-
T					-		-	-				-	-	-	-	-	-				-	-
n								-								-	-					
r								-								-	-					
s					+			-					+			-	-					
l								-								-	-					
j								-								-	-					
I		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
k		-	-	-		-	-	-	-	-	-		+	-	+	-	-	-	-	-	-	-
g		-	-	-		-	-	-	-	-	-			-	+	-	-	-	-	-	-	-
K					-		-	-			-	-			-	-	-			-	-	-
ŋ								-								-	-					-
h								-								-	-					-

Examples are:

/bl/:	/'blanda ~ ba'landa/	'Holland'
/mh/:	/mhun ~ mu'hun/	'inside'
/fm/:	/fmun ~ fu'mun/	'over there'
/wl/:	/'wlanda ~ wa'landa/	'Holland'
/tm/:	/tmun ~ tu'mun/	'over there'
/tj/:	/tjina (~ 'sina)/	'Chinese'
/dj/:	/djam (~ 'jam)/	'o'clock, hour'
/kr/:	/'kriTkratda ~ ki'riTka'raTda/	'to make noises'
/kl/:	/klas ~ ka'las/	'classroom, class'
/fl/:	/'flores/	'Flores'
/gl/:	/glas ~ ga'las/	'glass'
/sr/:	/sri'kaja ~ siri'kaja/	'sweetsop' <i>Anona squamosa</i>

/fn/: /fniŋ ~ fi'niŋ/ 'soil'
 /sm/: /'smuI ~ su'muI/ 'wind'
 /tj/: /'tjoklat (~ 'soklat)/ 'cocoa'

TABLE 12
 Clusters in Word-final Position

	P	m	f	U	T	n	r	s	l	I	K	ŋ	h
I	-			-					+			+	+
U	-			-	+	+					+	+	+

Examples are:

/ 'nenaUT/ 'my relative of opposite sex'
 /ka'wâIŋ/ 'speak'
 /'aUh/ 'deer'
 /'laUŋ/ 'quick, fast'
 /'mimaUn/ 'to make holes repeatedly'
 /'paUK/ 'to bow'
 /'neIh/ 'my body'
 /'wokaIl/ 'to embrace'

Intermorphemic clustering is common. Because of the abundance in which it occurs I shall not give any examples here.

There are apparent restrictions on the sequences of consonants that occur; three-place clusters are very rare intramorphemically: /an'dreas/, /'aUŋka/ 'Ceriman' (*Monstera deliciosa*). Across morpheme boundaries they have been attested occasionally: /'nenaUtlou/ 'my relative of opposite sex' +prom.m.

There are many vowel clusters in Wolsika. The following clusters have been attested thus far:

TABLE 13
Two-place Vowel Clusters

V ₁ ↓	V ₂ →	a	â	e	ê	i	î	u	û	o	ô	ae	ao
a		+	+	+	+	+	+	+	+	+	+	+	+
â		+	+					+	+	+	+		
e		+	+								+		
ê		+											
i		+	+	+	+	+	+	+	+	+	+	+	+
î		+				+	+						
u		+	+	+									
û		+							+				
o		+		+				+	+	+			
ô		+							+				
ae		+											
ao		+											

For sequences of vowel phoneme plus archiphoneme /I/ or /U/, see par. 3.4.3. *in fine*.

Sequence of more than two vowels are rare.

Examples are:

/'faua/ 'hammered'

/'neâûa/ 'this bird of mine'

8.2.2. Frequency of Phonemes and Archiphonemes

The relative frequencies of the phonemes and archiphonemes in Woisika were calculated from a text of 11,302 phonemes.

Single phonemes and archiphonemes expressed as a percentage of the total number of phonemes are:

TABLE 14

>3%	<3%>1%	<1%	<0.1%
/â/ 14.50%	/j/ 2.35%	/p/ 0.90%	/û/ 0.08%
/n/ 9.75%	/u/ 2.32%	/r/ 0.83%	/ae/ 0.08%
/e/ 9.50%	/b/ 2.04%	/T/ 0.70%	/P/ 0.02%
/i/ 7.09%	/K/ 2.02%	/i/ 0.44%	/ao/ 0.01%
/a/ 5.20%	/h/ 1.50%		
/s/ 4.30%	/ê/ 1.45%		
/m/ 4.20%	/ô/ 1.40%		
/l/ 4.20%	/d/ 1.30%		
/t/ 4.09%	/g/ 1.15%		
/o/ 4.03%	/f/ 1.14%		
/k/ 3.17%	/U/ 1.01%		
/ŋ/ 3.10%			
/I/ 3.09%			
/w/ 3.04%			

The data on single phonemes may be summarised by noting the frequency of occurrence of each type of phoneme.

vowels 50.20% (including /I/ and /U/)
 consonants 49.80%

Consonants classified according to their manner of articulations:

occlusives 15.39% approximants 11.09%
 fricatives 5.44% trill/tap 0.83%
 nasals 17.05%

Consonants classified according to their articulation/source of phonation:

labial 11.34%
 apical 25.17%
 palatal 2.35%
 velar 9.44%
 glottal 1.50%

Voiceless, voiced consonants and voice-irrelevant consonants:

voiced 31.96%
 voiceless 15.10%
 voice-irrelevant 2.74%

These figures show that with the exception of /â/, tense vowels are rare. /â/ accounts for over 28% of the vowels, /n/ for over 19% of the consonants. The apicals account for over 50% of the consonants.

9. EXTERNAL SANDHI

In Woisika contact across word boundaries occurs especially in non-deliberate speech. Below only the main alternations are listed:

(1) two similar consonants may be realised as one:

(d.sp)		(n.sp)
/i'ndaK ka'tê/	'eat yours.'	/i'ndakatê/
/sâI ja'neŋ/	'with the bed'	/sâjanen/
/a'haK ka'têta/	'and the food'	/a'hakatêta/
/na'lomsɪ/	'I say'	/na'lomsɪ/
/kuI-noK-kô'kaTsi/	'a dog is barking'	/kuInokô 'kaTsi/

(2) two identical lax vowels may be realised as one tense vowel or as one lax vowel (idiolectally conditioned):

(d.sp)		(n.sp)
/ka'têma 'ano?/	'already eaten?'	/ka'têmâno, ka'têmano?/
/ka'têta a'ru/	'a glutton'	/ka'têtâru, ka'têtaru/
/si i'li i'sunte/	'we fetch water first'	/sîlîsunte/
/ta'ra a'teI/	'sparrow'	/ta'râteI/
I/na 'aŋfuŋ/	'I there'	/naŋfuŋ/
L/ja'akasi/	'he in this way'	/jâkasi/

(3) a sequence of a tense vowel and lax vowel may be realised as a tense vowel:

(d.sp)		(n.sp)
I/'saIma ba'kâ a'wila/	'a basket with no areca nuts in it'	/saIma ba'kâwila/
A/jâ'aŋfuŋ/	'(to go) to there below'	/jâŋfuŋ/
/dâ a'teI/	'sparrow'	/dâteI/

(4) unstressed and final /i/ may be realised as /j/ before word-initial vowel:

(d.sp)		(n.sp)
L/si'oI te/	'we went up that way'	/sj'oIte/

(5) word-initial /w/ before /u/ after a word-final vowel may be deleted. Word initial /j/ before /â/ after a word-final front vowel may be deleted:

(d.sp)		(n.sp)
/ 'nuâ 'wufun/	'to do something'	/ 'nuâUfun/
/na-se-'jâTda/	'I come to visit him'	/nase'âTda/
/si-'fe-jâ/	'we go down to'	/si'feâ/

(6) after a final vowel word-initial /j/ and /i/, /w/ and /u/ are neutralised:

(d.sp)		(n.sp)
A/'kilo i'wesin/	'five kilos'	/ 'kiloIwesin/
/ 'ante 'ina/	'directly'	/ 'anteIna/
/ 'nâte 'ina/	'or now'	/ 'nâteIna/
/ 'nua 'piâ 'wobahnâ/	'not to be doing anything'	/ 'nuâ 'piâUbahnâ/
L/'wobâ i'pâ/	'to kill'	/ 'wobâIpa/
/mê-'ite/	'to fill'	/ 'mêIte/
L/'neTbê 'ina/	'too, now'	/ 'neTbêIna/

(7) after final /i, i/ word initial /j/ is optional (comp. par. 3.1.5.):

(d.sp)		(n.sp)
/tî-'jân/	'mouse go down'	/tîân/
vs. /tîân/	'that mouse'	

10. ORTHOGRAPHY

For obvious reasons the orthography is based on the Indonesian writing system.¹⁴

Since the tense-lax opposition by Woisika speakers is interpreted in terms of duration, digraphs are used for the tense phonemes.

Stress is not indicated.

Woisika phonemes	Suggested symbol	Indonesian symbol
/i/	i	i
/î/	ii	
/e/	e	e
/ê/	ee	
/ae/	ae	ae*
/a/	a	a
/â/	aa	aa
/u/	u	u
/û/	uu	
/o/	o	o
/ô/	oo	
/ao/	ao	

* in words such as aerodinamika

Woisika phonemes	Suggested symbol	Indonesian symbol
/p/	p	p
/b/	b	b
/P/	p	p, b
/m/	m	m
/f/	f	f, v**
/w/	w	w
/d/	d	d
/t/	t	t
/T/	t	d, t
/r/	r	r
/n/	n	n
/s/	s	s
/l/	l	l
/j/	y	y
/k/	k	k
/g/	g	g
/K/	k	k, g
/ŋ/	ng	ng
/h/	h	h
/I/	i	i
/U/	u	u
/dj/ ^o	j	j
/tj/ ^o	c	c
/sj/ ^o	sy	sy

** Indonesian uses two different symbols for [f]

^o In Indonesian loans only

11. WOISIKA STORY: THE APPARITION (told by L. Kamengmai)

11.1. A phonetic transcription of the text showing the principal allophones and some of the elisions and assimilations of connected speech.

11.2. A phonemic transcription. For the punctuation see par. 4. and 7. Deleted phonemes are given between parentheses.

11.3. A word-for-word English translation. English words which together constitute the meaning of a Woisika word are hyphenated.

11.4. A free Indonesian translation by L. Kamengmai. The punctuation is as in normal Indonesian.

11.5. A free English translation; the punctuation is as in normal English.

11.6. Notation in the proposed orthography; the punctuation is as in normal Indonesian.

11.1.

[(1) ?i'laŋ (2) 'minok'nepaga'ja·'la·malĩŋ saqɑ'bah (3) saqɑ'bahdi·
 ja· i'tuŋsibo 'jeija: (4) ja·wat-'tanda'mijsĩŋsũybo'gejja:
 (5) 'jeija·'la·mana·wɑ·j'jejã·ŋsewu'leh si'lãŋ (6) sesi'lãŋ'baugel
 (7) gase'baugeldahak- we·'ja·ma? (8) 'watuajsi'lama?

11.2.

/(1) i'lân. (2) 'minoK 'nepa ga-'jâ 'lâmaliŋ saK a'bah. (3) saK a'bahdĩ
 jâ-i'tunsibo 'jeIjâ. (4) jâ-waTtanda 'miIsĩŋsuhbo 'geIjâ. (5) 'jeIjâ
 'lâmanâ-wôI 'jejãŋ se-wu'leh si'laŋ. (6) se-si'laŋ 'baUgel. (7) ga-se-
 'baUgeldahak, wê-'jâma. (8) 'watu aI-si'lama

11.3.

(1) *Ghost.* (2) *once my-father he goes Lamaling grass pull* (3) *grass
 pulling-continuously until evening-and he-goes-home* (4) *until o'clock
 eight-and-he-goes-home* (5) *he-goes-home Lamana through-that-place he-
 comes-down to slope to-go-down* (6) *until go-down Baugel* (7) *he until
 Baugel-being, flood came-down.* (8) *afternoon rain fell*

11.4.

(1) Setan (2) Pada suatu hari bapak saya pergi cabut rumput di Lamaling
 (3) Cabut rumput terus sampai sore dia pulang (4) Sampai jam delapan
 dia pulang (5) Dia pulang liwat Lamana menurun di lereng (6) turun
 sampai di Baugel (7) Dia sampai di Baugel, banjir (8) Pada siang hari
 hujan jadi

11.5.

*An apparition. Once my father went to Lamaling to weed his garden.
 He worked all day and when evening came he returned home. It was
 already eight o'clock before he went home. He returned through Lamana
 and he took the steep descend to Baugel. When he came to Baugel there
 was a flood because there had been a heavy rain in the afternoon.*

11.6.

Ilaan. Minok nepa ga yaa Laamaling sak abah. Sak abahdii yaa itunsibo
 yeiyaa. Yaa wattanda miisingsuhbo geiyaa. Yeiyaa Laamanaa wooi
 yeyaang se wuleh silang. Se silang Baugel. Ga se Baugeldahak, wee
 yaama. Watu ai silama.

11.1.

(9) 'we·jā·k'kɔlkɔlnā·ŋ- (10) 'we·bā·j'jā·ma? (11) 'ʔan-naʔ'nepajā·-
'weta 'wɔwā·'wemeʔ (12) 'we·kbɔqɔ, 'we·k'pika? (13) 'ʔan-naK'nā·bɔga-
'āŋmi (14) ga'bāŋtā·'jenihdi: (15) jā·'mifaretāqan'tɔlkɔn'wɔ·seybɔga-
'we·k-

11.2.

(9) 'wê-jâK 'kolkolnân (10) 'wê-bâI 'jâma. (11) 'anna, 'nepa jâ-'weta
'wowâ 'we-me. (12) 'wêK 'boko, 'wêK 'pika. (13) 'annaK 'nâbo ga-'aŋmi
(14) ga'baŋtâ 'jenihdi (15) jâ-'mifaretā kan 'tolkon 'wôsehbo ga-'wêK

11.3.

(9) *flood came-down much* (10) *flood big came-down* (11) *then my-father*
goes the-place inspect go-to-and-fro (12) *crossing bad, this-flood*
rapid (13) *then he there* (14) *on-the-bank he-sit-continuously* (15) *until*
after-a-while it-falls-and he crosses

11.4.

(9) Banjir turun, banjir turun banyak. (10) Banjir turun. (11) Jadi
bapak mulai periksa tempat ke sana kemari (12) mau menyeberang, tidak
bisa, karena banjir deras. (13) Jadi dia duduk (14) di pinggir sungai
(15) sampai lama sedikit, derasnya berkurang sedikit, lalu dia
menyeberang

11.5.

Since it has rained there was a heavy flood. There was a flood, so my
father walked up and down looking for a place to cross. It was impos-
sible, the current was too rapid. So he sat on the bank of the river
until by and by the strength of the current subsided and he tried to
cross

11.6.

Wee yaak kolkolnaang. Wee baai yaama. Anna, nepa jaa weta wowaa we
me. Week boko, week pika. Annak naabo ga angmi gabangtaa yenihdii
yaa mifaretakan tolkon woosehbo ga week

11.1.

(16) 'bɔkɔʔ 'tana·'pikaʔ (17) 'ʔan-na ga'kul'miɣawa·lme'tãŋbɔ'maiba
 'fa·hsibo (18) 'aɣbɔgaat-me·'dei·'wɔt- (19) ʔat-me·'dei·'wɔt-ta (20)
 ga'jel'jenihdi: (21) jel'jeniydi·jɑ'titlasamakansiboga'we·kaj:

11.2.

(16) 'boko, 'tanâ 'pika. (17) 'anna ga-'kul 'migawâl me'tãŋbo 'maIba
 'fâhsibo (18) 'ahbo ga-'aT mê-'deI 'woT (19) aT-mê-'deI 'woTta (20)
 ga-jel 'jenihdi (21) jel-'jenihdiɑ 'titlasamakansibo ga-wêK aI!

11.3.

(16) *bad, still rapid* (17) *then he again goes-back comes-up-and bamboo search-and* (18) *then he fire brings under brink make* (19) *fire brings under brink made* (20) *he near he-sits-continuously* (21) *near he-sat-continuously the middle-of-the night-and he goes alas*

11.4.

(16) masih deras. (17) Jadi dia kembali di pinggir sungai lagi dan dia cari bambu kering (18) dan dia buat api di bawah goa. (19) Sesudah buat api di bawah goa (20) dia duduk dekat api sampai lama (21) Dia duduk dekat api sampai sentengah malam, dia menyeberang lagi, ah!

11.5.

But the current was still too strong. So he waded back to the bank of the river and began to search for some dry bamboo and he made a fire in the shelter of the overhanging bank. After lighting the fire, he sat near it for a long time. He sat there far into the night and then tried to cross again, but alas!

11.6.

boko. Tanaa pika. Anna ga kul migawaal metaangbo maiba faahsibo, ahbo ga at mee de ii wot. Atmee de ii wotta ga yel yenhidii. Yel yenhidii titlasamakansibo ga week, ai!

11.1.

(22) 'aŋbe·kul'boko (23) 'an-nak- ga'akan'suk-pākaj: (24) 'inakna'akmi
'netα·xte? (25) 'ʔanĩŋdãŋnana'majtaŋdi·si? (26) 'ʔannak'nα·bo'titlaga
'fetĩŋ'bulsibo (27) ga'α·tãŋ'woba: (28) g(a)'α·tãŋ'woba·ja·'misamak-
ansakaj: (29) 'noklõŋseko·m'gʷtũŋ'wojtisi? (30) nokse'akan'wojtisi?
(31) mǎ·ŋfu'mũŋko· 'fetĩŋ'bulĩŋda??

11.2.

(22) 'aŋbê kul-'boko. (23) 'annaK ga-'akan 'suKpaK aI! (24) 'inaK na-
'akmi 'netâhte (25) 'aningdan na-na'maitaŋdi·si (26) 'annaK 'nâbo 'titla
ga-'fetiŋ 'bulsibo (27) ga-'âtaŋ 'wobâ. (28) g(a)-âtaŋa 'wobâ jâ-
'misamakansaK, aI! (29) 'nok-lõŋ se-kô-mu'tũŋ 'woItisi. (30) noK-se-
'akan 'wuItisi (31) mǎŋ-fu'muŋ kô-'fetiŋ 'bulĩŋda?

11.3.

(22) *that again bad.* (23) *then he so thinks, alas* (24) *now I here I-*
sleep-but (25) *in-this-case I I-hungry-continuously* (26) *then night he*
big-bamboo-stalks cut-and (27) *he bridge makes* (28) *he the-bridge makes*
until-being-in-the-half, hei, (29) *one comes up-over-there calls-him*
(30) *one comes in-this-way calling-him* (31) *who down-there is big-*
bamboo-stalks cutting?

11.4.

(22) *tidak bisa.* (23) *Jadi dia pikir-pikir begini* (24) :*"Ah, sekarang*
kalau saya tidur disini (25) *berarti saya tidak makan."* (26) *Terpaksa*
malam juga dia potong bambu besar (27) *lalu dia buat jembatan* (28) *Dia*
pertengahan buat jembatan, ah (29) *ada orang panggil dia di sana.* (30)
Satu orang datang panggil begini: (31) *"Hoi, siapa yang ada potong*
bambu?"

11.5.

Failure again. then he thought to himself: "Alas, if I am forced to
sleep here, what will I eat!" While it was still dark, he went out to
cut some large bamboo stalks. While he was making the bridge, hei!
somebody was calling him from over there. Somebody was calling: "Who
is cutting those big bamboo stalks over there?"

11.6.

Ang bee kul boko. Annak ga akan sukpak: "Ai! inak na akmi netaahte,
aningdang na namaitangdiisi." Annak naabo titla ga feting bulsibo ga
aatang wobaa. Ga aatanga wobaa yaa misamakansak, ai! nok loong se koo
mutung woitisi. Nok se akan wuitisi: "Maang fumung koo feting bulingda?"

11.1.

(32) 'an-na'nepaGa'aqasi'nal-lora? (33) 'an-na'lamsa-kāngal'misejsinsi
 (34) 'al 'ma·u? (35) 'nepaga'bmsinalka'mēŋmajo? (36) 'an-na'netā·maga-
 'akanka'mēŋde? (37) 'ʔē·ŋko· 'fetĩŋ'bulihme·mu'na·uRahlogra?? (38)
 'an-na? 'nepaGal-'lomsĩ?e·j:we·'ja·ntanou (39) wē·k'bokounako·'a·tāŋ-
 wobā·Hako? (40) 'an-na 'malsa·kaga'jã·ŋme?

11.2.

(32) 'anna 'nepa ga-'akasi 'nallora (33) 'anna 'lamsâkaŋ gal-'mieIsinsi
 (34) 'al 'mâU? (35) 'nepa ga-'lomsĩ nal-ka'menmajo (36) 'anna 'netâma
 ga-'akan ka'menŋe (37) 'Êŋ-kô 'fetĩŋ 'bulih mê - mu'nâUrahloUra? (38)
 'anna 'nepa gal-'lomsĩ êI! wê-'jântanoU (39) wêK-'bokoU na-kô-â'taŋ
 'wobâhako (40) 'anna 'malsâka ga-'jânme

11.3.

(32) *then my-father he in-this-way it-is-me* (33) *then that-old-man he*
asks-again (34) *you who?* (35) *my-father he says I Kamengmai* (36) *then*
this-relative-of-second-descending-generation-of-mine he thus Kamengmai
 (37) *you are big-bamboo-stalks cutting for-what-is-it?* (38) *then my-*
father he says well flood is-here-now (39) *crossing bad I am bridge*
making-here (40) *then Mallet he comes-down*

11.4.

(32) Jadi bapak bilang: "Saya!" (33) Lalu bapak tua itu tanya lagi:
 (34) "Engkau, siapa?" (35) Bapak menjawab: "Saya Kamengmai." (36) Lalu
 nenek bilang: "Kamengmai, (37) engkau potong bambu besar itu buat apa?"
 (38) Lalu bapak bilang: "Ah, banjir jadi (39) tidak bisa menyeberang
 jadi saya ada buat jembatan." (40) Jadi Mallet datang

11.5.

So my father answered: "It's me!" Then the man asked further: "Who are
you?" My father answered: "I am Kamengmai." Then the very old man
said: "Kamengmai, what are you cutting those big bamboos for?" Father
said: "Unfortunately, there is this flood, and I cannot cross the river.
So that's why I am busy making a bridge." Then the old man, Mallet,
came down.

11.6.

anna nepa ga akasi: "Nallora." Anna lamsaak ang gal mieisinsi: "Al
 maaU?" Nepa ga lomsĩ: "Nal Kamengmai." Anna netaama ga akan: "Kamengde!
 Eeng koo feting bulih mee munaaurahloura?" Anna nepa gal lomsĩ: "Eei!
 wee yaantanou week bokou na koo aatang wobaahako." Anna Malsaaka ga
 yaangme.

11.1.

(41) 'ʔan-nα'malsα·qαga'akasi (42) ʔaj'inaka'ti·lnalse'sin-nɔkmah
 (43) sil'α tãŋ 'wɔbã·ŋsil'wetena? (44) 'an-nα'nα·bɔ'nɛpαgal'malsα·qα
 'gan-nɔk(k)ɔ·'α·tãŋα'wɔbα: (45) 'wɔbα·laj-jǎk- (46) gα'we? (47)
 ga'wα:'malsα·qα'jɛ·nsumante (48) al'bei 'alma'Gα·silsinã·ŋ (49)
 'nɛpα·k'g^jɛwejliRǎkgal'wãŋ

11.2.

(41) 'anna 'malsâka ga-'akasi (42) aI 'ina ka'tîl nal-se-'sinnoK mah
 (43) sil-'âtaŋ 'wobâŋ sil-'wetena ... (44) 'anna 'nâbo 'nɛpa gal-
 'malsâka 'ganno(K) kô 'âtana 'wobâ. (45) 'wobâlaIjaK (46) ga-'we. (47)
 ga-'wâ, 'malsâka 'jênsuante (48) al-'beI 'alma 'gâsilsinâŋ. (49) 'nɛpâk
 'geweIliraK gal-'wâŋ

11.3.

(41) *then the-old-Mallet he thus* (42) *well, now I come we-together come-*
on (43) *we bridge make-and we cross-what-about-it* (44) *then my-father*
he the-old-Mallet they-both are the-bridge making (45) *having-finished*
 (46) *they cross* (47) *they crossed. the-old-man-Mallet he-went-first-but*
 (48) *this not human-being him-not-disturb.* (49) *my-father after-him-*
being he crossed

11.4.

(41) Malsak bilang (42) : "Ah, sekarang ini saya sudah datang jadi kita
 (43) berdua buat jembatan dan kita menyeberang ke sana (44) Kemudian
 bapak saya dan Malletsak mereka dua buat jembatan. (45) Selesai buat
 jembatan (46) mereka menyeberang (47) Mereka menyeberang, Malsak dahulu,
 (48) tetapi tidak ada orang yang mengganggu dia (49) Bapak saya dari
 belakang

11.5.

and said: "Well, since I am here now, let's make the bridge together and
then go across, all right?" And so father and Mallet set about making
the bridge. Having finished the bridge, they started out. Mallet went
first without incident. Father came next.

11.6.

Anna malsaka ga akasi: "Ai, ina katiil nal se sinnok mah! Sil aatang
 wobaang sil wetena. Anna naabo nepa gal malsaaka gannok koo aatanga
 wobaa. Wobaalaiyak ga we. Ga waa, malsaaka yeensumante al bei alma
 gaasilsinaang nepaak geweilirak gal waang

11.1.

(50) 'ʔalmǎlgalga'mutaj'je·riki'tansi? (51) 'je·riki'tanĩŋ (52) wε·k-
'boko (53) gal'kul'miawα·lmǎ·ŋ'mε·lkǎŋ (54) gal'kul'wǎŋ (55)
'almalgal'kulga'mutai'je·Riki'tanĩŋ (56) 'ʔan-na'nεpαjα'wosamansi? (57)
'fo·u (58) lǝ·ŋ'nε·lmakənounokga'borasi'andaybona'wεpα kul'nε·rij'tanse·

11.2.

(50) 'almal gal-ga'mutaI 'jêriK i'tansi. (51) 'jêriK i'taniŋ (52)
'wêK'boko (53) gal-'kul 'miawâl 'mân- 'mêlkan (54) gal-'kul-wǎŋ (55)
'almal gal-'kul ga'mutaI 'jêriK i'taniŋ. (56) 'anna 'nεpα 'wosamansi
(57) 'fôU lôŋ- (58) 'nêlmakanoUnoK ga'borasi 'andahbo na-'wεpα kul-
'nêri i'tansê

11.3.

(50) *human-being he his-back his-umbrella tug* (51) *his-umbrella tugged*
(52) *the-crossing bad* (53) *he again goes-back went-backwards the-going-*
backwards good (54) *he again went-forward* (55) *human-being he again his-*
back (from-behind) his-umbrella tugged (56) *then my-father said-in-his-*
heart (57) *well now* (58) *one-of-my-relatives he-dies in-that-case my*
going-forward again my-umbrella do-not-tug.

11.4.

(50) orang tarik payungnya dari belakang. (51) Karena orang tarik payung
dari belakang (52) tidak bisa ke sana (53) Dia mundur lagi, itu bisa (54)
Dia maju lagi (55) orang tarik lagi payung dari belakang. (56) Jadi
bapak mulai bersumpah (57) : "Ah, (58) kalau keluarga saya ada yang mau
mati, kalau begitu, sekarang saya menyeberang, jangan tarik lagi.

11.5.

but somebody was tugging at his umbrella from behind. Because of the
tugging, he could not go forward. He could only go back. He tried
again, but someone was tugging again at the umbrella. So father said in
his heart: "Well now, if it means that one of the family will die, then
do not bother me again when I cross the river this time,

11.6.

almal gal gamutai yeerik itansi. Yeerik itaning, week boko. Gal kul
miawaal maang meel kang. Gal kul waang, almal gal kul gamutai yeerik
itaning. Anna nepa wosamansi: "Foou, loong neelmakanou nok gaborasi
andahbo na wepa kul neeri itanse.

11.1.

(59) 'ʔaHak'na·te'setãŋ'je·di·ta·u? (60) 'ʔandahkuli'tamih! (61) 'ʔan-na'nepaga'we·k (62) kuli'tansi'an-na'nepaga'akasi'apa'setãn-no? (63) 'ʔan-na'nepaga'akasi ʔah a'tãŋ'meti^h! (64) 'titlaRahnanal'nejja·- 'titlaRahna? (65) nal'nejja·ma'nemidante? (66) 'ʔan-na'nepa-γaan- 'wosamanpa'malsα·gbe·'jewofα·xsi.

11.2.

(59) 'ahaK 'nâte 'setaŋ 'jêdîtâU (60) andah kul-i'tani! (61) 'anna 'nepa ga-'wêK (62) kul-i'tansi 'anna 'nepa ga-'akasi 'apa 'setanno (63) 'anna 'nepa ga-'akasi ah a'taŋ 'meti! (64) 'titlarahna nal-'neIjâ 'titlarahna (65) nal-'neIjâ ma'nemidante (66) 'anna 'nepa ga-an-'wosamanpa 'malsâKbê 'jewofâhxi

11.3.

(59) *but if ghost different* (60) *then again tug* (61) *and my-father he goes-forward* (62) *again tug then my-father he in-this-way this is a ghost* (63) *then my-father he says, hei, let go* (64) *it-is-night-so I I-go-home it-is-night-so* (65) *I I-go-home to-the-village-now* (66) *then my-father he in-this-way spoke this-old-man-Mallet-also he-wonders*

11.4.

(59) kalau setan sembarangan, (60) boleh tarik lagi". (61) Lalu bapak ke sana (62) payungnya ditarik lagi. Lantas bapak bilang: "O, ini setan sembarangan, bukan jiwa keluarga saya." (63) Bapak bilang: "Ayo, lepas tangan! (64) Sudah malam, jadi saya mau pulang. Sudah malam (65) saya mau pulang sampai di kampung." (66) Bapak bersumpah begitu, Mallet juga rasa heran.

11.5.

but if you are only an ordinary ghost, go ahead and tug again." And so father tried again and somebody tugged at his umbrella again. Father said: "O, this is an ordinary ghost, not the wandering spirit of a relative about to die." Father said: "Hei, let go! It's already dark, I want to go home. It's night so I want to go back to the village." Father was talking to himself like this, so Mallet wondered

11.6.

Ahak naate setang jeediitaau, andah kul itani." Anna nepa ga week kul itansi. Anna nepa ga akasi: "Apa setanno." Anna nepa akasi: "Ah, atang meti! Titlarahna nal neiyaa titlarahna nal neiyaa manemidante." Anna nepa ga an wosamanpa malsak bee yewofaahsi.

11.1.

(67) 'ʔan-na'malsα·kaga'akasi (68) ka'mẽŋdeʔ'inαpαlɔ·ŋ'tɔhlou'α·hlej:
 (69) 'sin-nɔk-kou-bate'almâlɔ·ŋ'nalăl'nα·silsina· (70) 'alăkkɔ·-
 'α·silsak (71) 'an-na'nepaga'akasi'saura? (72) 'nedbe·lɔ·ŋ'neŋlakwɔnα·te
 (73) mu'nα·ɣjẽ·ŋα'hãŋɔ (74) 'ʔan-naga'jesu'je·ndaga'welkãŋ (75) 'ʔan-
 naga'gan-nɔk'geijα·'fewega'bãŋka'rα·tɔlda? (76) 'nepaga'akasi

11.2.

(67) 'anna 'malsâka ga-'akasi (68) ka'menɔde 'inapa lôŋ-'tohlou 'âhleI
 (69) 'sinnoKkoUbate 'almal lôŋ- 'nalal 'nâsilsinâ (70) 'alaK kô-'asilsaK
 (71) 'anna nepa ga-'akasi 'saUra (72) 'neTbê lôŋ-'neŋlakwonâte (73)
 mu'nâU-jêŋ a'hango (74) 'anna ga-'jesu 'jênda ga'wel kan (75) 'anna ga-
 'gannoK 'geIjâ 'fewe ga'ban ka'râtolda (76) nepa ga-'akasi

11.3.

(67) *then the-old-man-Mallet he in-this-way* (68) *Kamengmai now what-is-going-on in-this-way* (69) *we-are-together-but human-being me not-disturb-me* (70) *you are being-disturbed* (71) *then my-father he in-this-way I do-not-know* (72) *I-too just do-not-know-and* (73) *what this is-going-on-here* (74) *then he the-third-time goes forward good.* (75) *then they they-both they-go-back go-down bank the-other-side* (76) *my-father he in-this-way*

11.4.

(67) Malsak bilang (68) : "Kamengmai, kenapa bisa terjadi begitu? (69) Kita dua tetapi orang tidak ganggu saya (70) hanya engkau diganggu." (71) Bapak bilang: "Tidak tahu, (72) saya sendiri tidak tahu juga (73) apa yang buat begitu." (74) Sampai ketiga kali dia menyeberang, bisa. (75) Mereka dua menyeberang ke sebelah. (76) Bapak bilang:

11.5.

and said: "Kamengmai, what brought this about? There are two of us, but no one is bothering me, only you are being bothered." Father said: "I do not know myself what is doing this." The third time he tried, he crossed over so both of them made it across. Father said:

11.6.

Anna Malsaaka ga akasi: "Kamengde, inapa loong tohlou aahlei?
 Sinnokkoubate almal loong nalal naasilsinaa, alak koo aasilsak." Anna
 nepa ga akasi: "Saura, net bee loong nenglakwonaate munaau yeeng ahango."
 Anna ga yesu yeenda gawel kang. Anna ga gannok geiyaa fewe gabang
 karaatolda. Nepa ga akasi

11.1.

(77) 'malsa·ku (78) 'ʔinaknẽ·ŋ'ne·nsusi 'wubale·'nebiie·hlouna? (79)
 'ʔan-na'malsa·ka ga'akasi'jou'andãhkaẽ·ŋ'e·nsusi?ẽ·ŋ'e·nsu? (80) 'ʔan-
 nawuj-i'tutasi^h'gan-nɔ(k)kakɔ· 'ma·di: (81) 'wetewu'leha te? (82)
 'ti·mana·'mana·'jetewe? (83) 'mana·'jetewe ja·a'pujmi? (84) a'pujmi-
 'aŋmitɔl'jenih.

11.2.

(77) 'malsâku (78) 'maK nêŋ-'nênsusi 'wubalê 'nebiêhloUna ... (79) 'anna
 'malsâka ga-'akasi joU 'andah ka-êŋ-'ênsusi êŋ 'ênsu (80) 'anna wui
 i'tutasi! 'ganno(K) ka-kô-'mâ-dî (81) 'wete wu'leha te (82) 'tîmanâ
 'manâ 'jetewe (83) 'manâ 'jetewe jâ-a'puImi (84) a'puImi 'aŋmi tol-'jenih

11.3.

(77) *old-man-Mallet* (78) *then it-is-me-who I-go-first too I-am-afraid-*
you-know-so (79) *then the-old-man-Mallet he thus yes in-that-case come-*
on it-is-you-who you-go-first (80) *then moon dark. they-both are-going-*
continuously (81) *go-up the-slope ascend* (82) *Timana slope they-go-up*
 (83) *slope they-go-up to Apuimi* (84) *in Apuimi there a-little they-sit*

11.4.

(77) "Mallet, (78) sekarang saya yang dahulu. Saya terlalu takut."
 (79) Malsak bilang: "Ja. Kalau begitu engkau dahuluan. Engkau dahulu."
 (80) Bulan juga gelap! Tetapi mereka dua jalan terus (81) mendaki naik
 lereng (82) naik lereng Timana (83) naik sampai di Apuimi (84) Sampai
 di Apuimi mereka duduk sedikit.

11.5.

"Mallet, now I want to go first. I am terrified, you know." Mallet
 said: "All right, if that is the case, go ahead. You go first then."
 It was new moon and very dark, but the two of them walked on, ascending
 the slope at Timana up to Apuimi. There they rested awhile.

11.6.

"Malsaaku! Inak neeng neensusi. Wubalee nebieehlouna." Anna malsaaka
 ga akasi: "You, andah ka eeng eensusi. Eeng eensu." Anna wui itutasi
 gannok ka koo maa dii wete wuleha te Timanaa manaa yetewe. Manaa yetewe
 yaa Apuimi. Apuimi angmi tol yenih

11.1.

(85) ta'băk-'jenα·kgakul'mα: (86) 'mα·di·jā·te? (87) ga'jā·te? wəjfu?
 (88) kul'mα· 'fewe? 'dɔlmiRa(k)kul'wete pa'lepuj'jewete (89) 'je·isoljā·-
 'pipitĩŋ (90) 'pipitĩŋdamante'beitol 'jenihsinα·'je·jsol'ji·jā:
 jā·telubujmidak- (91) lu'bujmidak'malsα·kja'akasika 'mẽŋde? (92)
 'nalana'nejjα:

11.2.

(85) ta'baK 'jenâK ga-kul-'mâ (86) 'mâ-dî-jâ-te (87) ga-'jâ-te'woIfu.
 (88) kul-'mâ 'fewe 'dolmira(K) kul-'wete pa'lepuI 'jewete (89) 'jêIsol
 jâ-'pipitiŋ (90) 'pipitiŋdamante 'beI tol-'jenihsinâ 'jêIsol 'jîjâ.
 jâ-te-lu'buImidaK (91) lu'buImidaK 'malsâK ja-'akasi ka'menċe (92) 'nala
 na-'neIjâ.

11.3.

(85) *tobacco they-smoked they again leave* (86) *to-go-continuously-to-ascend* (87) *they go ascend Woifu* (88) *again go go-down valley again go-up Palepui they-go-up* (89) *straight to Pipiting* (90) *being-in-Pipiting-but a-little they-do-not-sit straight they-go-home to-go-up-entrance-of-the village* (91) *at-the-entrance-of-the village Mallet he in-this-way Kamengmai* (92) *I I I-go-home*

11.4.

(85) Sesudah merokok mereka jalan terus. (86) Jalan terus naik (87) sampai di Woifu (88) Jalan terus di lembah, ke sana liwat Palepui lagi. (89) Langsung ke Pipiting. (90) Mereka jalan sampai di Pipiting tetapi tidak berhenti di Pipiting, mereka langsung pulang sampai di pinggir kampung (91) Sudah sampai di pinggir kampung, Bapak Mallet bilang: "Kamengmai, (92) saya, saya pulang

11.5.

After a smoke they went on, climbing up to Woifu. They descended into the valley and passed Palepui, straight to Pipiting. When they got there, they did not rest but went straight on to the entrance of the village. There the old Mallet said: Kamengmai, I go home

11.6.

Tabak yenaak ga kul maa. Maa dii yaa te. Ga yaa te Woifu. Kul maa fewe dolmirak kul wete Palepui yewete yeeisol yaa Pipiting. Pipiting-damante bei tol yenihsinaa yeeisol yiiyaa. Yaa te lubuimidak. Lubuimidak Malsaak ya akasi: "Kamengde, nala na neiyaa.

11.1.

(93) bɑ·ga'rikatak-'teweuna? (94) ka'alakal'je·isolte'an-na (95) 'malsa·ka'jejja· bɑ·ga'rikatak'tewe (96) 'nepa'je·isolte? (97) 'je·-jsolta·k-ga'ja·'almāŋi·Rahakaj: 'alma'almāŋi·nā·ŋ (98) 'nilagbo'nita·-ni'jao·pansikama? (99) 'ʔan-na'nepaGa'ko·'it-ta? (100) 'malesɑ·ku? α'wĩŋsul (101) ga'tɑ·kga·'akasi

11.2.

(93) bâ-ga'rika-taK 'teweUna ... (94) ka-'alaK-al 'jêIsol-te. (95) 'malsâka 'jeIjâ bâ-ga'rika-taK 'tewe (96) 'nepa 'jêIsol-te. (97) 'jêIsol tâK ga-'jâ 'almaŋirahaK aI! 'alma 'almaŋinânŋ (98) 'nilaKbo 'nitâ ni'aopansikama (99) 'anna 'nepa ga-'kô 'iTta (100) 'malesâku! a'wiŋa-sul (101) ga-'tâK ga-'akasi:

11.3.

(93) *fence its-edge runs go-up-what-about-it* (94) *come-on you you might go up* (95) *the-old-Mallet he-goes-home fence its-edge runs goes-up* (96) *my-father straight ascend* (97) *straight ascended he goes to-the house, hei!* *human-being by-the-house-there-are-not* (98) *we-who we-sleep we-forgot-all* (99) *then my-father he have-been-calling* (100) *woman the-door open* (101) *he having-entered he in-this-way*

11.4.

(93) Saya pulang lewat pinggir pagar ke sana. (94) Mari engkau pulang terus ke rumah." (95) Lalu bapak Malsak pulang ikut pinggir pagar ke sana (96) dan bapak saya pulang terus ke rumah (97) Dia jalan terus naik sampai di bawah gudang, ah! tidak ada orang (98) kami tidur semua (99) Bapak panggil: (100) "Ibu, buka pintu. (101) Dia naik di gudang, dia bilang:

11.5.

To get home I go along the fence over there. You go ahead up to your house." So Mallet went home just like he had said and father went home too. Father went up to his house, "Hey, where is everybody?" We were all fast asleep. Father called: "Woman, open the door." He came into the house and said:

11.6.

Baa garika tak teweuna. Ka alak al yeeisol te." Malsaaka yeiyaa baa garika tak tewe. Nepa yeeisol te. Yeeisol taak ga yaa almangiirahak, ai!, alma almangiinaang. Nilakbo nitaa niaopansikama. Anna nepa ga koo itta: "Malesaaku! awinga sul." Ga taak, ga akasi:

11.1.

(102) 'ʔ'inak'alma'na·siltanoŋa (103) 'ʔũŋkɔnisu'ʔa·k'almaɭɭɔŋkɔ--
 'na·siltanouna? (104) wu'tɔŋ'ta·mũŋdame·su'yɛnɛuka'te·nal'netɑ·di·si?
 (105) 'ʔan-na'noukɔ'akasi 'wutɔŋma·l'mi·ma? (106) 'ʔan-na me-'jenka-
 te·ak- (107) ga'getɑ·di·ak (108) 'titla Ra'jɛfojne·k'aqasi? (109)
 aj:'jetɑ·mlɛ·uba? (110) 'bei'setãŋ'pi'ia·yɛnɑ·yba? (111) 'titlaRa'jɛfojne·k
 (112) 'jetɑ·m'jesũŋse'akasi

11.2.

(102) 'inaK 'alma 'nâsiltanoUna ... (103) 'iŋko ni'suâK 'almaal lôŋ-kô-
 'nâsiltanoUna ... (104) wu'ton 'tâmunɔda mê-su'e-nen ka'tê nal 'netâdiisi
 (105) 'anna 'noUko 'akasi 'wuton-mâl 'mîma (106) anna mê-'jen ka'têaK
 (107) ga 'getâdiak (108) 'titlara 'jefoInêK (109) ai! 'jetâmîêUba (110)
 'bei 'setaŋ 'piâUnâUba (111) 'titlara 'jefoInêK (112) 'jetâm 'jesun
 se-'akasi

11.3.

(102) *then human-being disturbed-me-you-know* (103) *ago we-came human-being was-disturbing-me-you-know* (104) *food cook give-me eat I I-sleep-continuously* (105) *then my-mother said food cooked there-is* (106) *then give-him ate* (107) *he he-slept* (108) *being-night he-dreamt in-this-way* (109) *well, it-is-his-relatives-of-the-second-ascending-generation* (110) *not ghost different* (111) *being-night he-dreamt* (112) *his-relative-of-the-second-ascending-generation his-relative-of-the-third-ascending-generation come in-this-way:*

11.4.

(102) "Tadi kami pulang ada orang ganggu saya. (103) - (104) Ada makanan bawa saya makan, sesudah makan saya mau tidur." (105) Ibu bilang: "Ada makanan." (106) Setelah dia makan (107) dia tidur. (108) Malam dia mimpi (109) Aduh, katanya nenek moyanglah (110) Bukan setang liar (111) Malam dia mimpi (112) itu nenek moyang datang bilang

11.5.

"On the way home I was pestered by somebody. On our way back home somebody pestered me. Is there any food? Bring me some. Then I want to sleep." Mother said: "There is food in the pot." After eating, he fell asleep. During the night he had a dream. Good heavens, apparently it was his ancestors, not just an ordinary ghost. That night in his dream his ancestors appeared and said

11.6.

"Innak alma naasiltanouna. Ingko ni suaak almal loong koo naasiltanouna. Wutong taamungda mee sue nen katee nal netaadiisi." Anna nouko akasi: "Wutong maal miima." Anna mee yen kateeak ga getaadiiak. Titlara jefoineek akasi, ai! yetaamleeuba, bei setang piaaunauba. Titlara jefoineek yetaam yesung se akasi

11.1.

(113) 'titlanẽ·ŋ'α·silmantẽ'bei'setãŋ'piã·una: (114) 'nal-loura?nal-
'etα·mlẽ·u (115) nẽ·ŋ 'iãsilmantẽj'ĩõ·ŋ'wɔbale·'titlasamaRantema·k-
(116) 'lak-kou'i·bα·si'anih'watu'piã·Rabɔ (117) ?il'wɔbale·'titlarante-
'mα·hje·'ante'alma'jẽ·ŋkabu·li'iasilsilouyna? (118) '?anmantẽ'nepαGa-
'akasijou'an-mah (119) 'bej 'piã·'nα·tẽ'nẽtα·mlẽ·u? (120) '?an-nã'di·iα
'mipajsan-nαtα'fẽŋbɔkɔGasi'lãŋ (121) gasi'lα·k a'tiŋa'lat-siɟak-

11.2.

(113) 'titla nẽŋ-'âsilmantẽ 'beI 'setaŋ 'piãUnâ (114) 'nalloUra nal
'etâmlẽU (115) nẽŋ 'iasil-mantẽ i-'lõŋ 'wobalẽ 'titlasamarantẽ mâK (116)
'laKkou 'ĩbâsi 'anih 'watu 'piãrahbo (117) il-'wobalẽ 'titlarantẽ
'mãhje 'ante 'alma 'jẽŋkabũl 'iasilsiloUna (118) 'anmantẽ 'nepa ga-'akasi
'joU 'anmah (119) 'beI 'piãnãtẽ 'netâmlẽu (120) 'anna 'diã 'mipaIsanna
ta'fẽŋboko ga-si'lan (121) gasi'lãK a'tiŋa 'laTsiak

11.3.

(113) *night it-is-me-who pestered-you-and not ghost-not-different* (114)
it-is-me I your-relatives-of-second-ascending-generation (115) *it-is-me-*
who pestered-you-and you all-the-time too middle-of-the-night-but going
(116) *language tell-you in-order-that time being-different-and* (117) *you*
too in-the-middle-of-the-night-and do-not-go in-this-way-and people
strange pester-you-you-know (118) *but my-father he in-this-way yes in-*
that-case (119) *not different-but my-grandfathers* (120) *then having-slept*
in-the-morning early he-wakes-up (121) *having-waked-up the-ladder placed*

11.4.

(113) Malam saya ganggu engkau, bukan setan sembarangan, (114) Itu saya!
Saya adalah nenek kamu. (115) Saya yang ganggu kamu karena kamu pulang
terlalu jauh malam (116) Jadi saya hanya kasih peringatan supaya lain
kali (117) kamu jangan pulang sampai jauh malam. Nanti orang yang tidak
kenal kamu nanti ganggu kamu." (118) Jadi bapak bilang: "O ya, kalau
begitu, (119) bukan setan lain, ternyata nenek moyang saya." (120) Lalu
dia tidur sampai pagi masih subuh, dia turun (121) Dia turun, kasih turun
tangga,

11.5.

I bothered you tonight, not an ordinary ghost. It was I. I, your
grandfather. I was it who bothered you because you were going home too
late at night. I just wanted to warn you not to go home too late at
night. If you do, you might be bothered by total strangers." So
father thought to himself: "O Yes, in that case, this was not some
ghost but it was my ancestors." He slept till morning. Before the sun
came up, he went down. He put the ladder down and

11.6.

Titla neeng aasilmantẽ bei setang piaaunaa. Nalloura, nal etaamleeu.
Neeng iasilmantẽ i loong wobalee titlasamarantẽ maak lakkou iibaasi anih
watu piaarahbo il wobalee titlarantẽ maahyee. Ante alma yeengkabuul
iasilsilouna." Anmantẽ nepa ga akasi: "You, anmah bei piaanaate neta-
amleeu." Anna diia mipaisanna tafengboko, ga silang. Ga silaak atinga
latejak

11.1.

(122) gasi'laŋ ga'weteja·'malsa·k'je·lmaŋi·Ra? (123) 'je·lmāŋi·rak
ga'akasi 'nepa: (124) 'titla'almaboko·'na·sil-lākbej'setāŋ'pija·na·-
'setaŋ'pija·na·te? (125) 'sita·mle·uRa? (126) 'titlanase'neta·di·iak-
'nefojne·k'lamsa·knoksu'ye·kse'aqasi'titla'i'asil-la (127) 'pija·'na·te
'nil-louRa? (128) 'ʔŋko'wobale·'titlasamaRante'ma·Hak (129) nŋ·ŋ 'lak-
kou'i·ba·si

11.2.

(122) gasi'lan ga-'wete jā-'malsâK 'jêlmaŋîra (123) 'jelma iraK ga-'akasi
nepa (124) 'titla 'almabo kô-'nâsillaK beI-'setaŋ 'piânâ 'setaŋ 'piânâte
(125) 'sitâmlêura (126) 'titla na-se-'netâdîak 'nefoInêK 'lamsâknoK su'êK
se-'akasi 'titla 'iasilla (127) 'piânâte 'nillouRa. (128) 'ŋko 'wobalê
'titlasamarante 'mâhaK (129) nŋ 'laKkou 'îbâsi

11.3.

(122) *he-goes-down he goes-down to old-man-Mallet his-house-under* (123)
his-house-under-being he in-this-way my-father (124) *night human-being-*
who was-pestering-me not ghost different ghost-different-but (125) *it-*
is-our-grandfathers-being (126) *night I come I-slept I-dreamt a-man came*
comes in-this-way night pestered-you (127) *different-but it-is-us.* (128)
Ago too in-the-middle-of-the-night-and this-walking (129) *it-is-us-who*
language tell-you

11.4.

(122) dia turun. Dia ke sana ke gudang bapak Malsak (123) Sampai di
bawah gudang dia bilang: "Bapak (124) tadi malam orang yang ganggu saya
bukan setan lain, bukan setan lain tetapi (125) nenek moyang kita! (126)
Malam saya datang tidur, saya mimpi bapak tua satu datang bilang: "Tadi
malam ganggu kamu (127) bukan lain orang, tetapi kami yang ganggu kamu.
(128) Karena kamu jalan terlalu jauh malam (129) kami kasih peringatan

11.5.

And left the house. He went to the house of old Mallet. He said:
"Mallet, the thing that was bothering me last night, was not an ordinary
ghost, but one of our ancestors. Last night I got home, slept and
dreamt that an old man came and said: "He who pestered you last night
was not a stranger but it was me. Because you went home too late at
night we reminded you

11.6.

Gasilang ga wete yaa Malsaak yeelmangiira. Yeelmangiirak ga akasi:
'Nepa, titla almabo koo naasillak bei setang piaanaa, setang piaanaate
sitaamleeura. Titla na se netaadiiak nefoineek lamsaak nok sueek te
akasi: "Titla iasilla piaanaate nilloura. Ingko wobalee titlasamarante
maahak niing lakkou iibaasi

11.1.

(130) 'jente 'alma 'wα·p-kabu·l' iiasilsilou? (131) 'ʔan-nak 'ŋĩ·ŋ 'lak-kou·i·bα·ma? (132) ta 'pela 'almakãŋbo 'ila 'jẽŋlak-wonα 'iiasilĩŋmalĩŋ.]

11.2.

(130) 'jente 'alma 'wâPkabul 'iasilsiloU (131) 'annaK 'nĩŋ-lôŋ 'laKkou 'îbâma (132) ta 'pela 'almakãŋbo 'ila 'jenlakwonâ 'iasilingmalĩŋ./

11.3.

(130) *soon human-being strange will-pester-you* (131) *therefore it-is-us-who just language told-you* (132) *people-who you you-do-not-know pester-you.*

11.4.

(130) nanti orang yang tidak kenal kamu ganggu kamu (131) Jadi kami hanya kasih peringatan. (132) Jangan sampai orang yang tidak kenal kamu nanti ganggu kamu."

11.5.

If you do, total strangers will bother you. So we only wanted to warn you. Do not give strangers a chance to bother you."

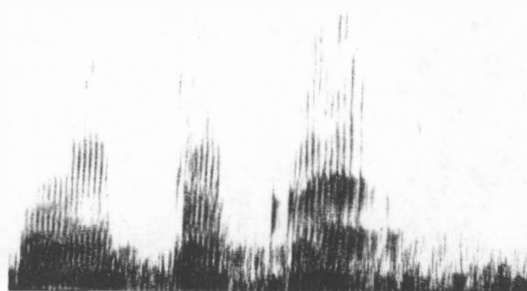
11.6.

yente alma waapkabul iasilsilou. Annak niing loong lakkou iibaama. Tapela almakangbo ila yenglakwonaa iasilingmaling."

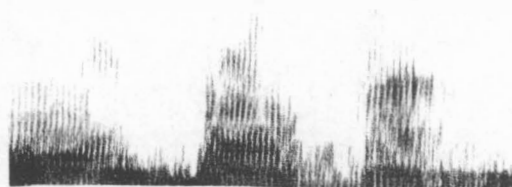
APPENDIX 1

Spectograms

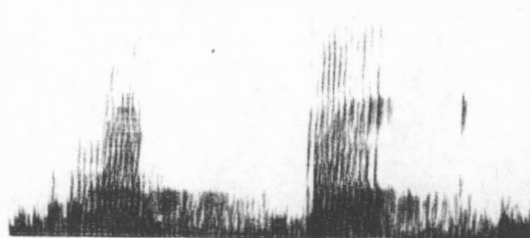
Informant: L. Kamengmai (the calibration is 500Hz.)



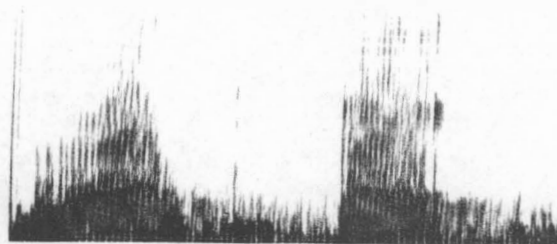
/'netoka/ 'my Arenga saccharifera'



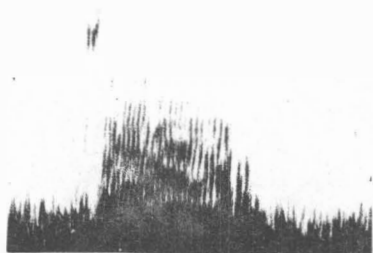
/'netôka/ 'my neck'



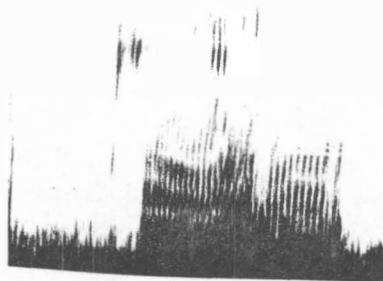
/'woTte/ 'roof first'



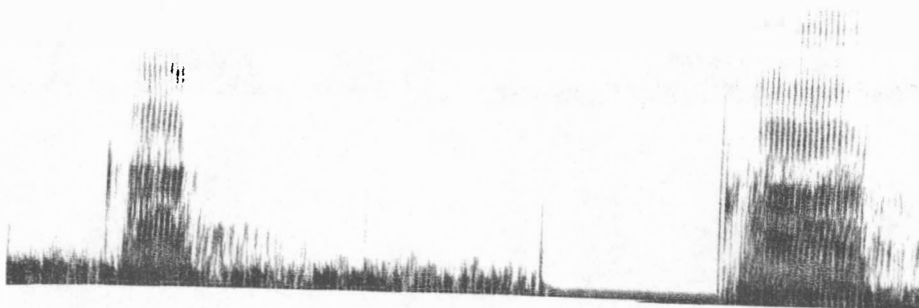
/'wôTte/ 'add first'



/kil/ 'to stab'

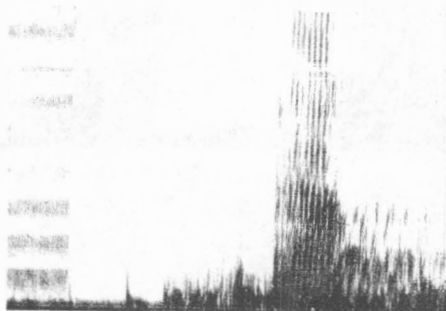


/kîl/ 'quiet'

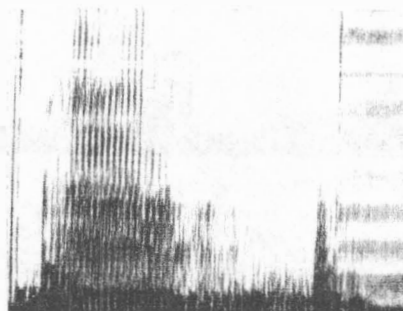


/kaT/ 'to make a sound'

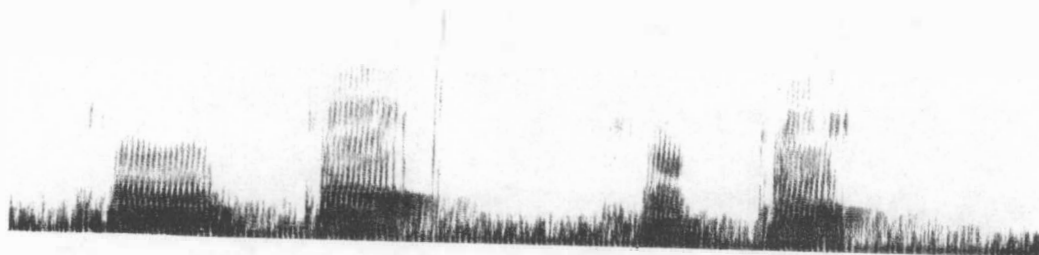
/kâT/ 'to bark'



/taK/ 'to run'

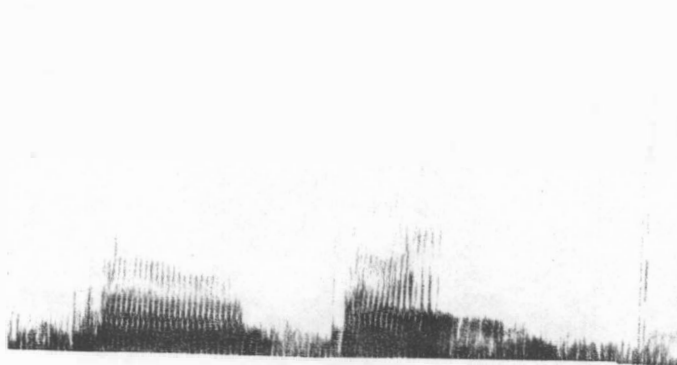


/tâK/ 'to cut'

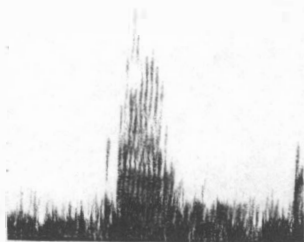


/'sûte/ 'heavy but'

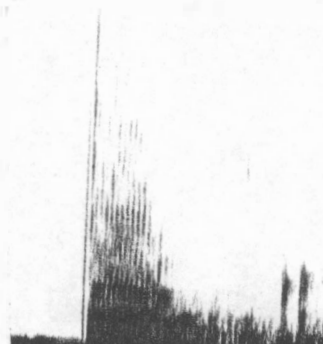
/'sute/ 'three but'



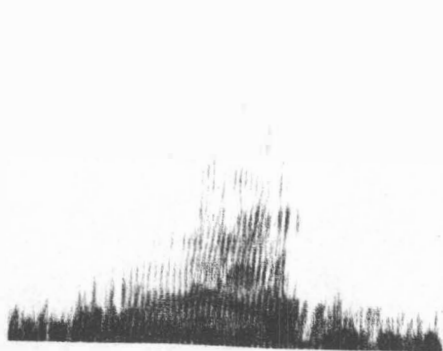
/'suUte/ 'once there were three but'



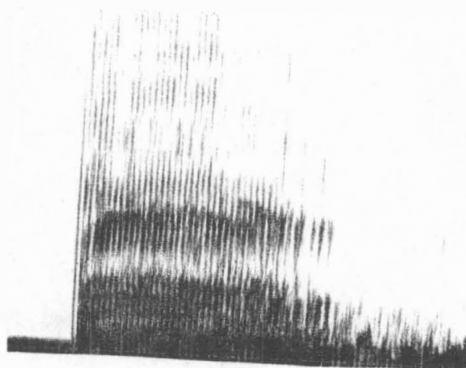
/puK/ 'big'



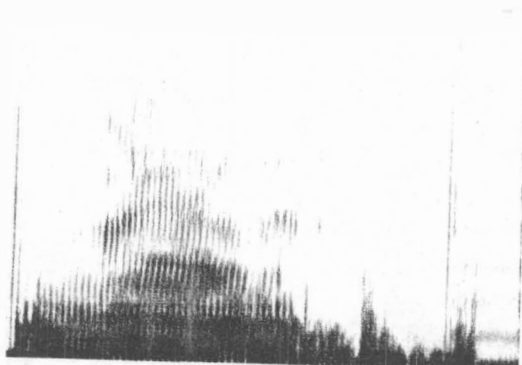
/pûK/ 'to break wind'



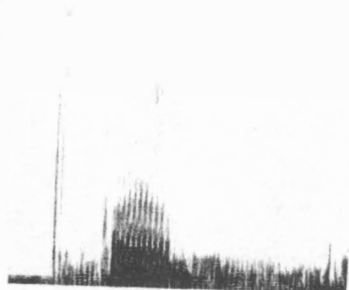
/we/ 'to go'



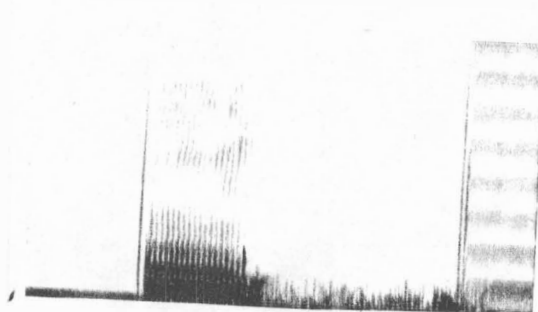
/wae/ 'mango'



/wê/ 'blood'



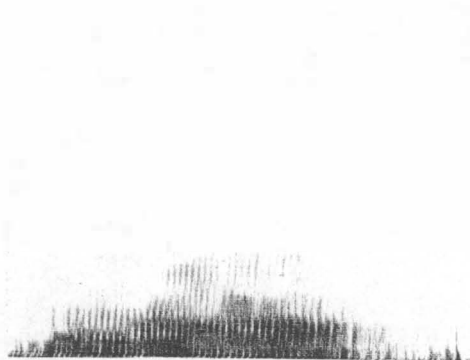
/tiK/ 'tick'



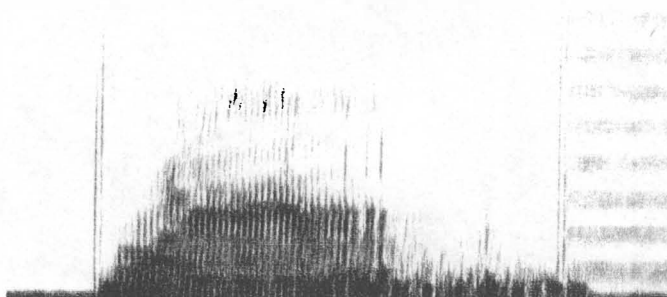
/tîK/ 'this mouse'



/wo/ 'there is'



/wô/ 'to follow'



/wao/ 'to happen'

APPENDIX 2

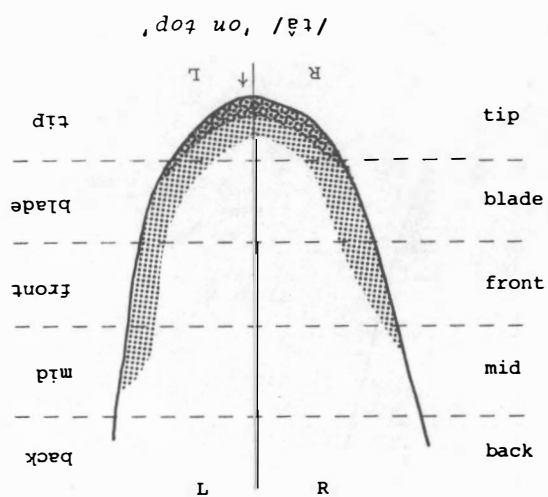
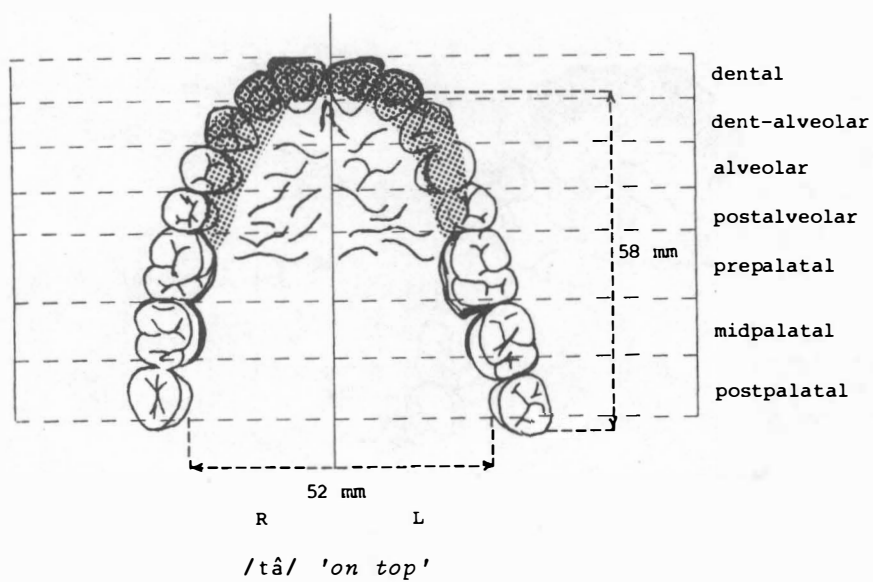
Palatalograms, Linguograms

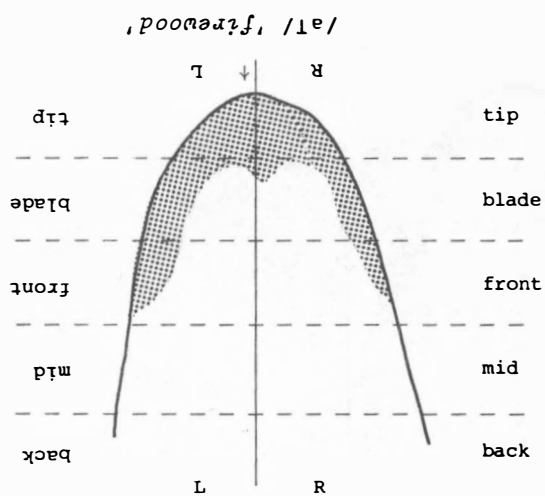
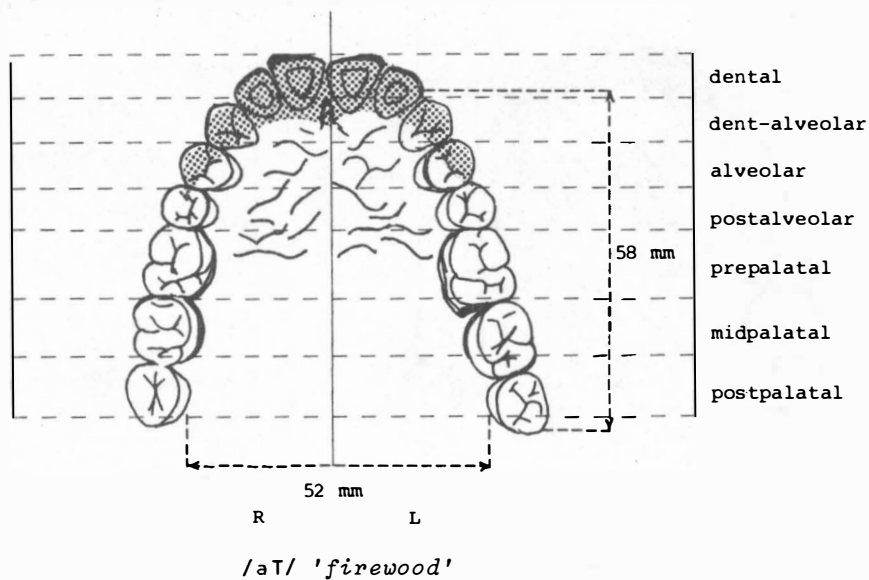
Artificial palate for Linus Kamengmai, Woisika

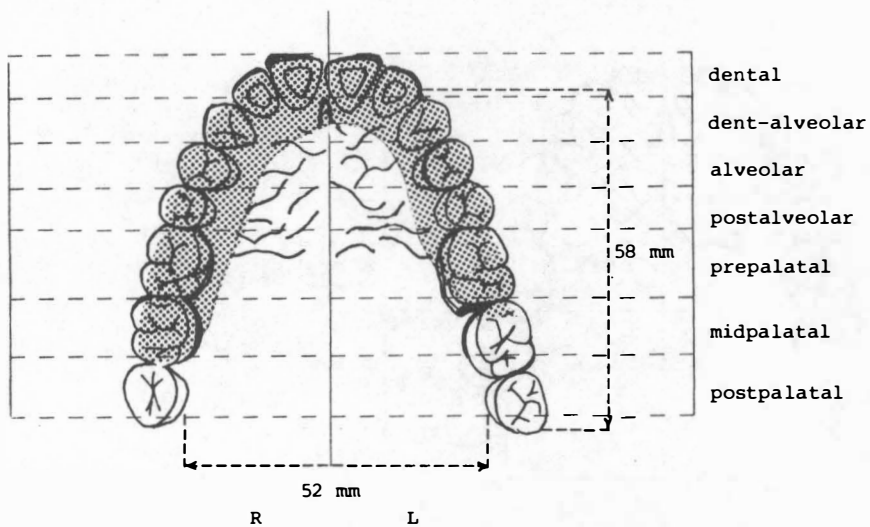
On the palatalograms the black areas mark the regions where there was wipe-off, i.e. where the tongue has touched an upper articulation. Note that the palatalogram constructed for this purpose was not cut off at the point where the teeth meet the gums but that it covers fissures, cusps and incisal surfaces of the teeth.*

In the linguograms the black areas show where there has been contact between the artificial palate and the tongue.

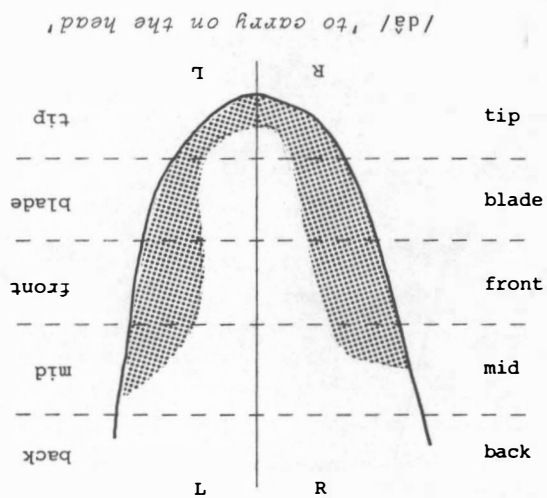
* For a more detailed description see Strenger 1968:334-61.

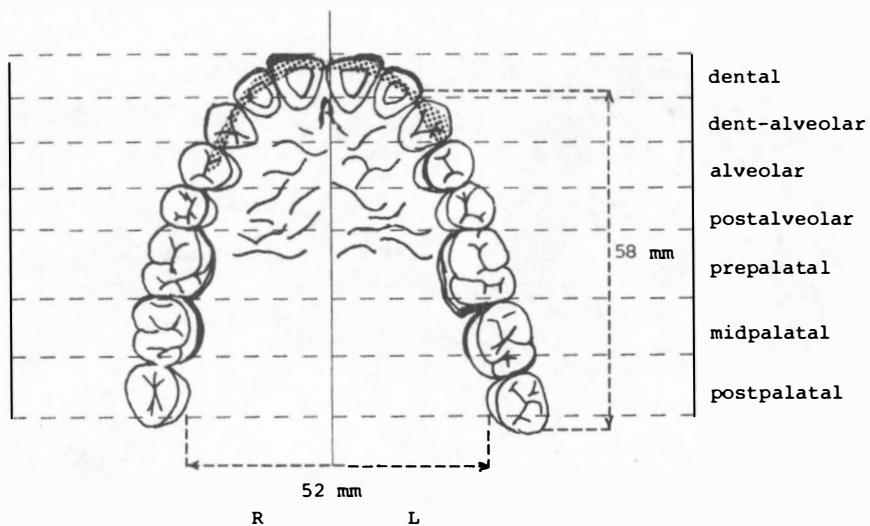




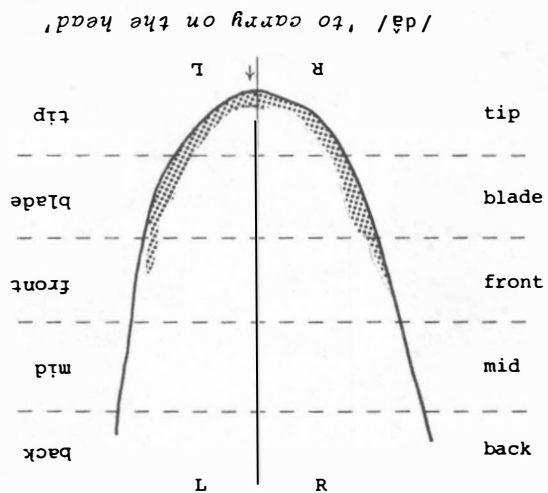


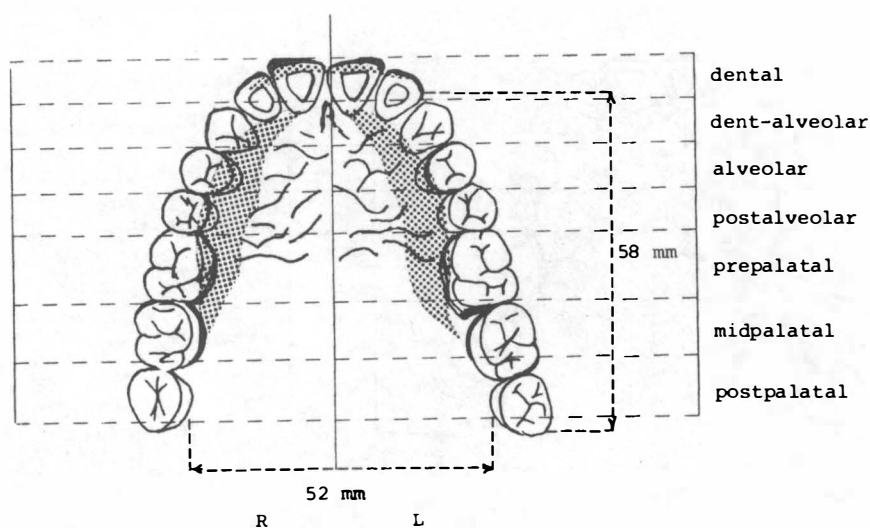
/dâ/ 'to carry on the head'



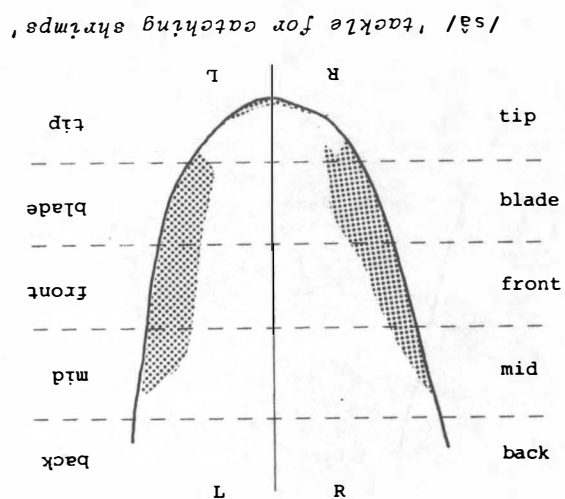


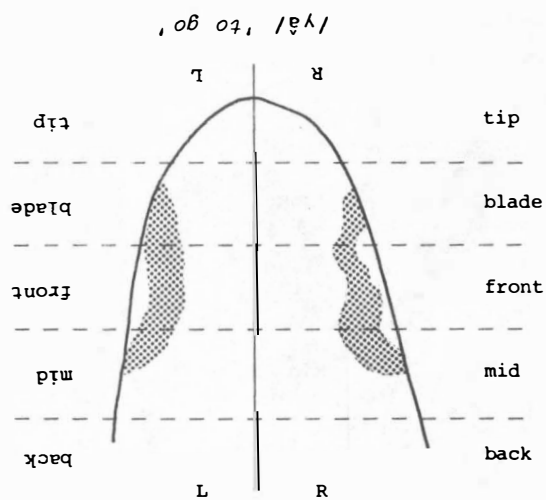
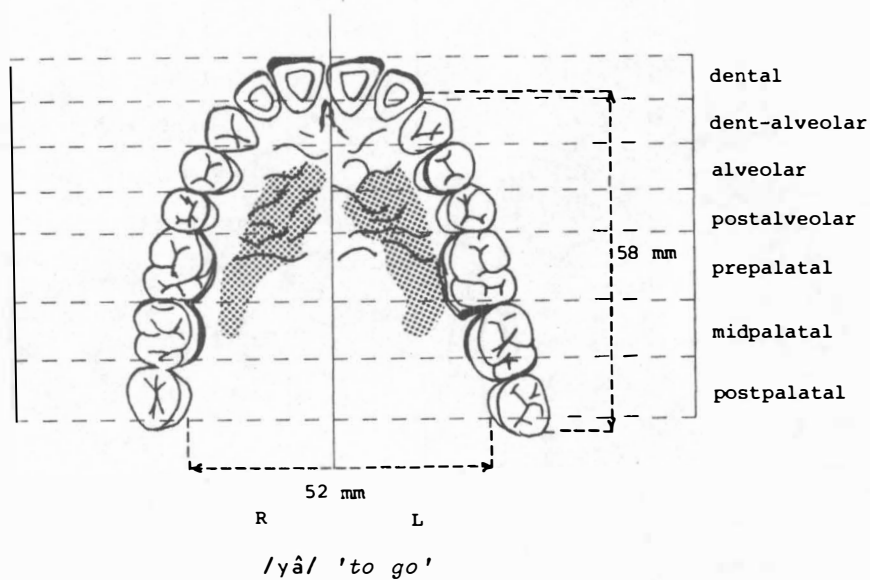
/dâ/ 'to carry on the head'

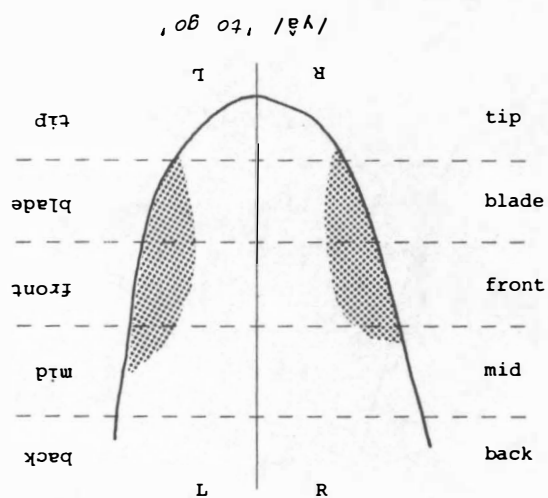
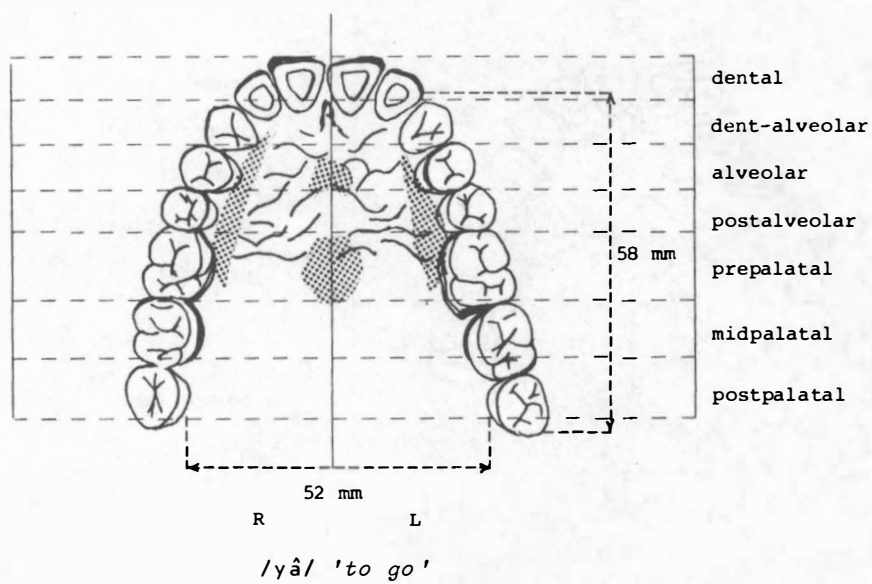


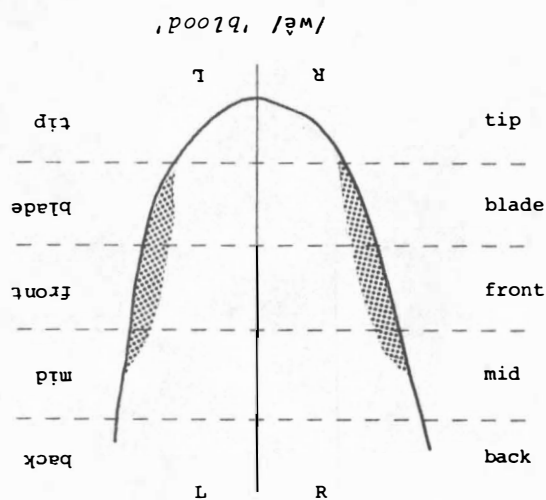
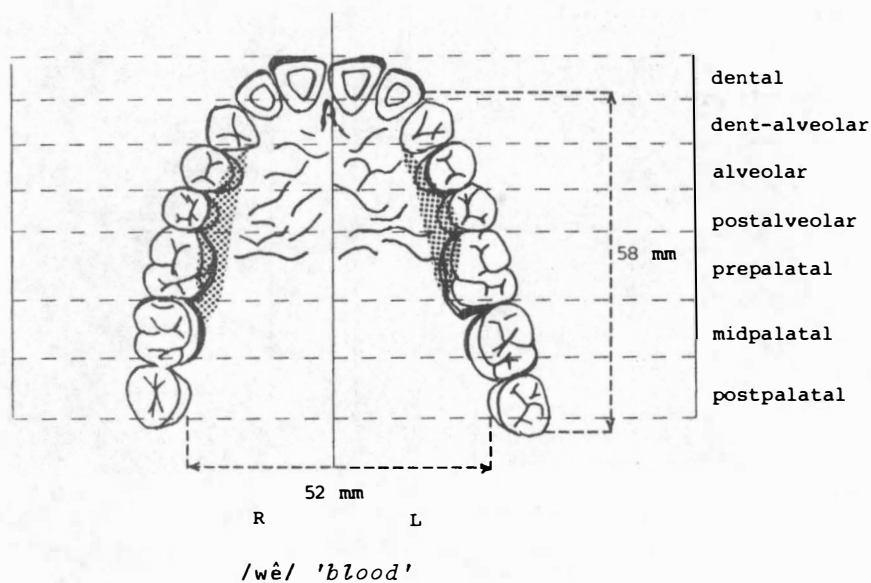


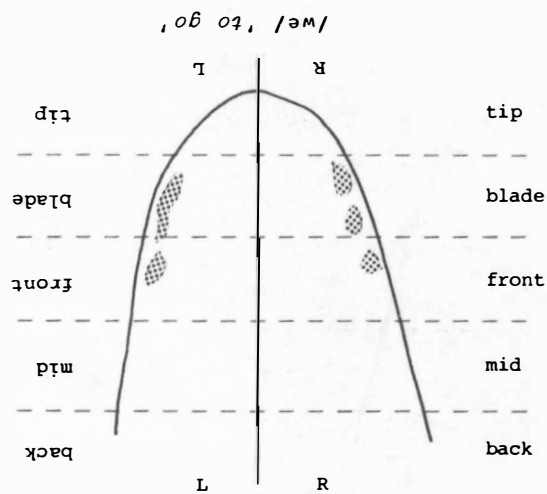
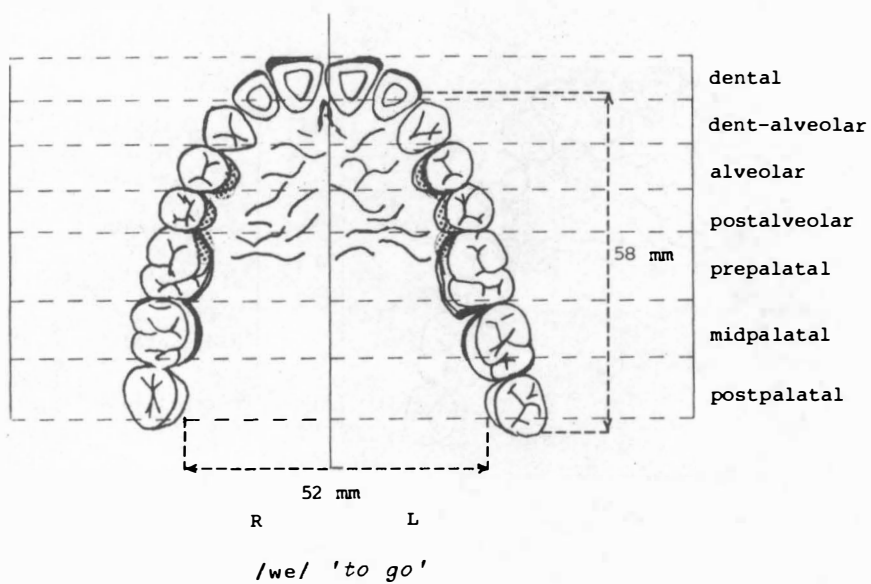
/sâ/ 'tackle for catching shrimps'

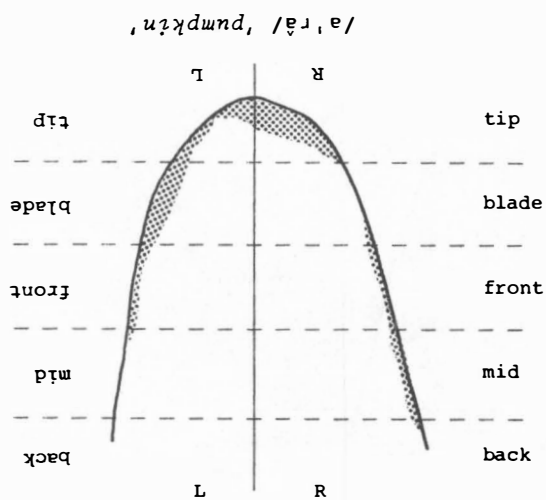
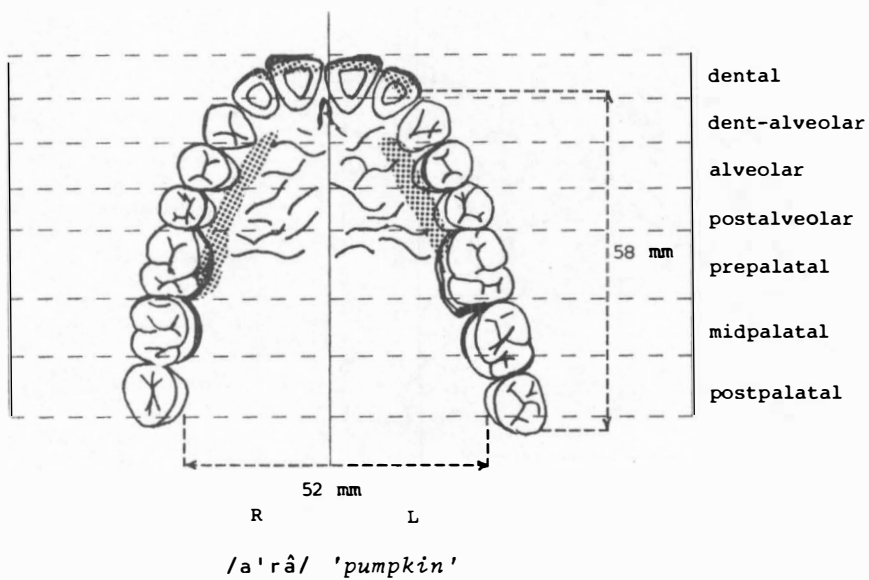


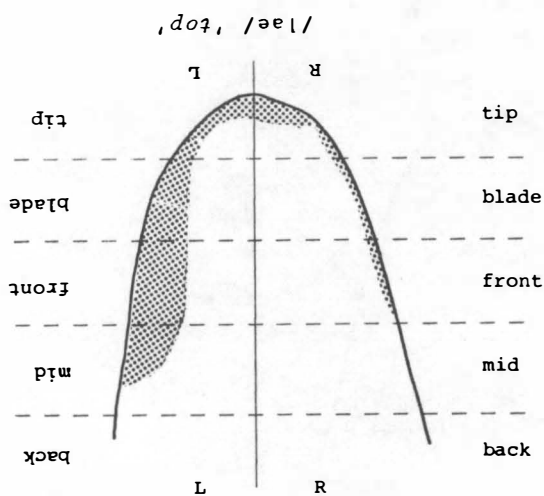
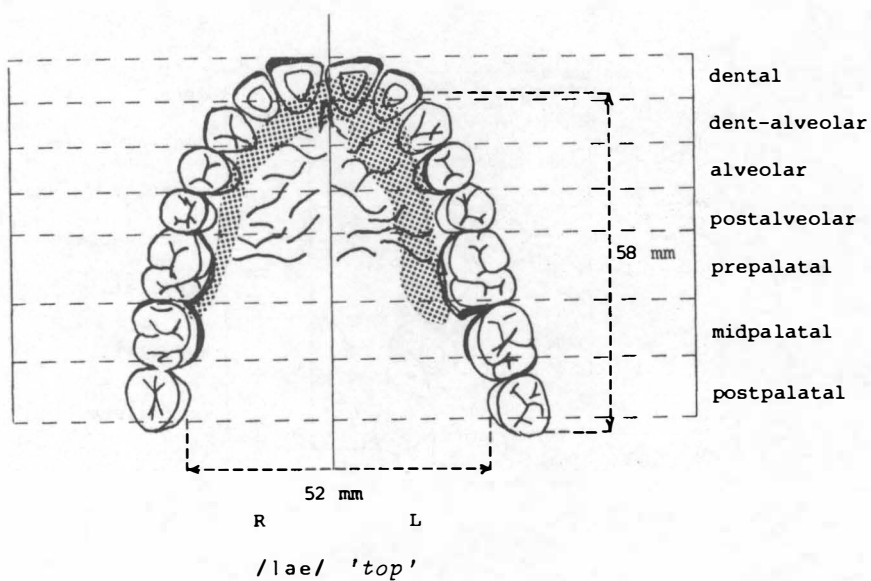


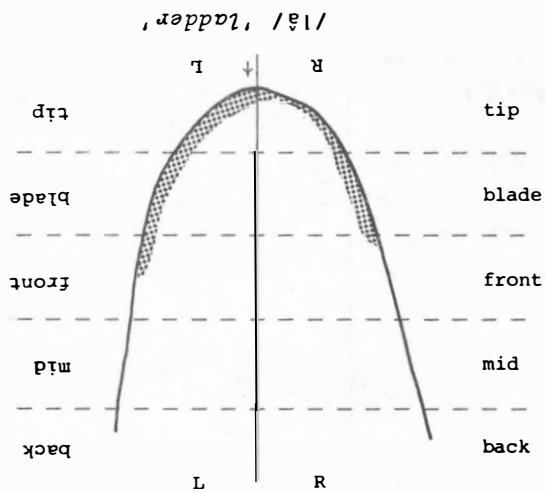
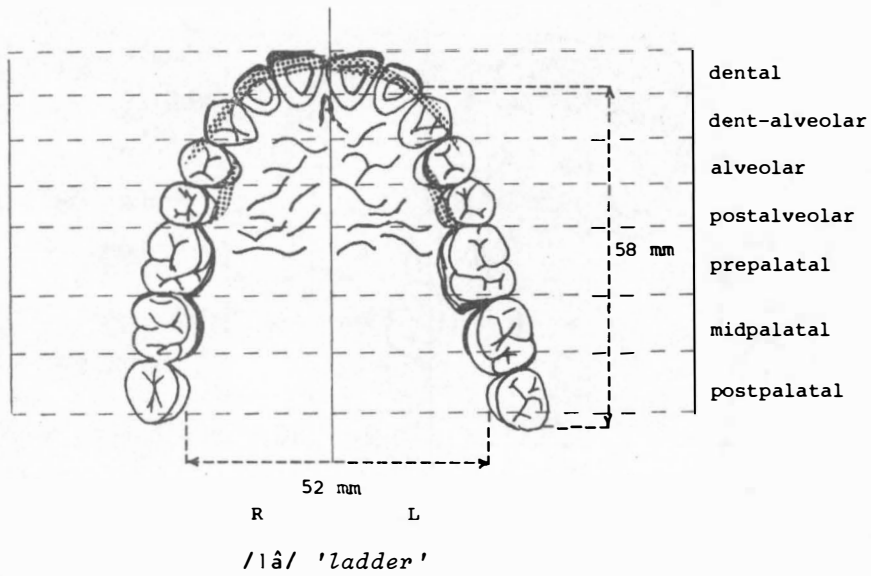


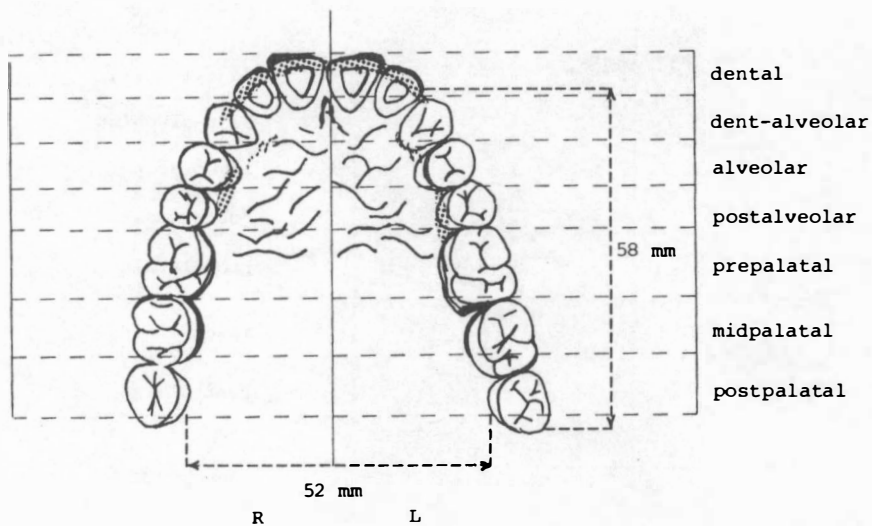




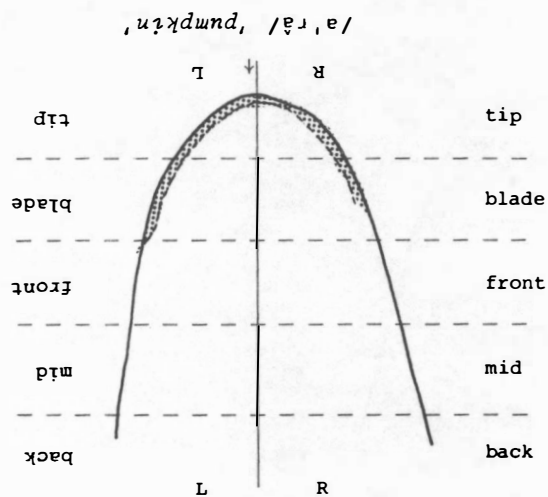


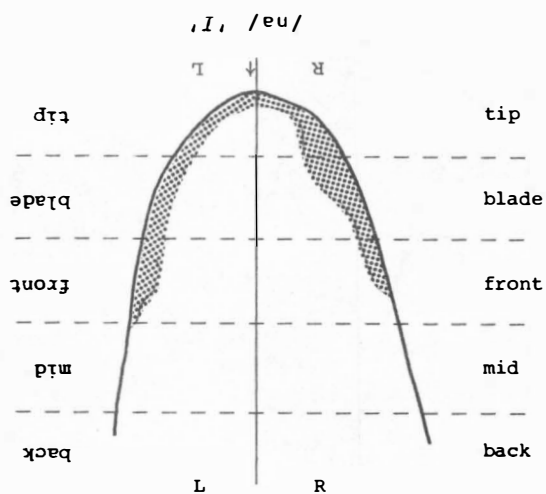
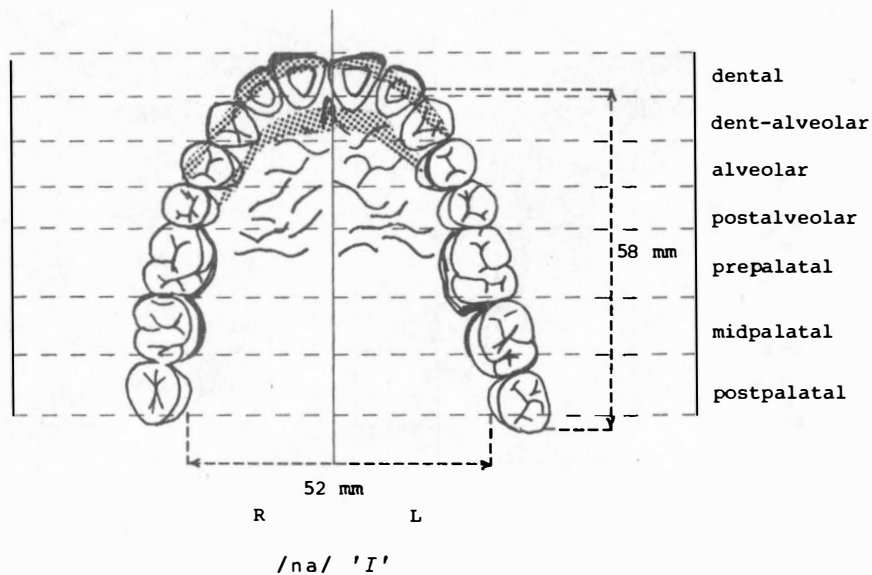


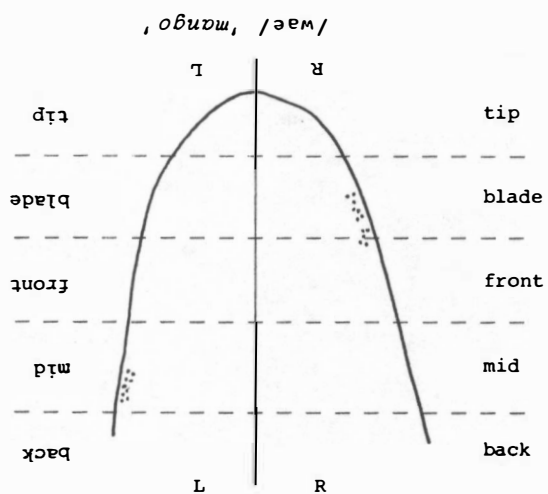
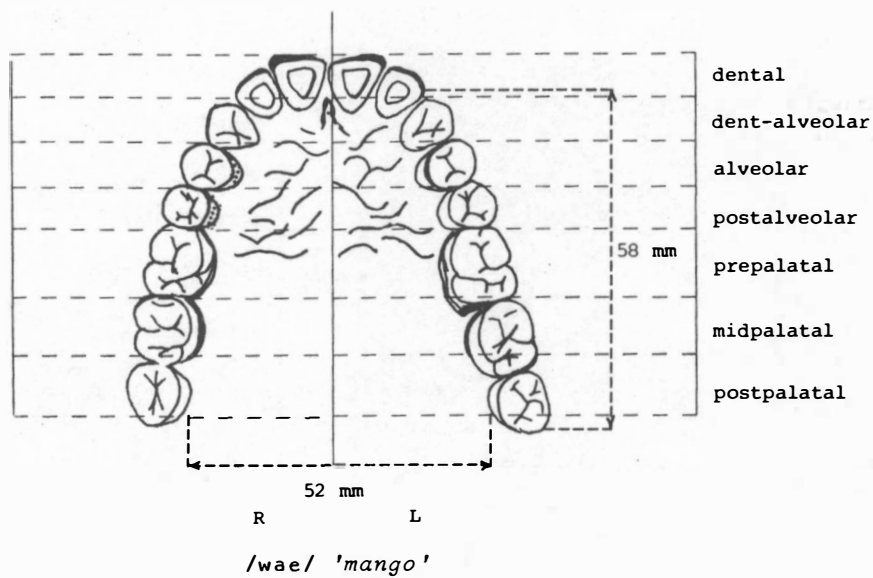


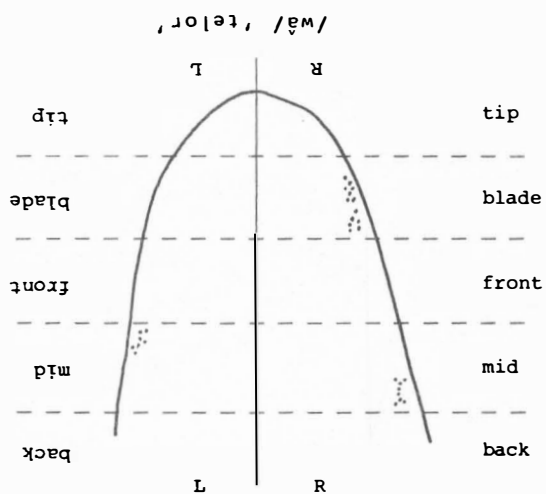
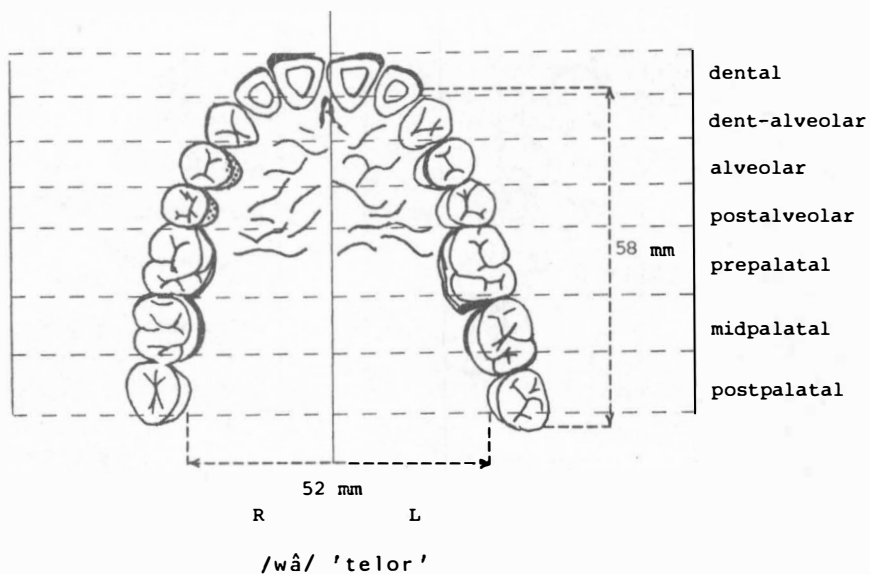


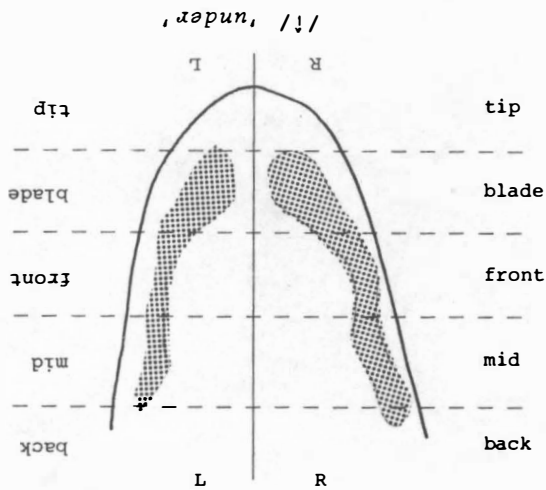
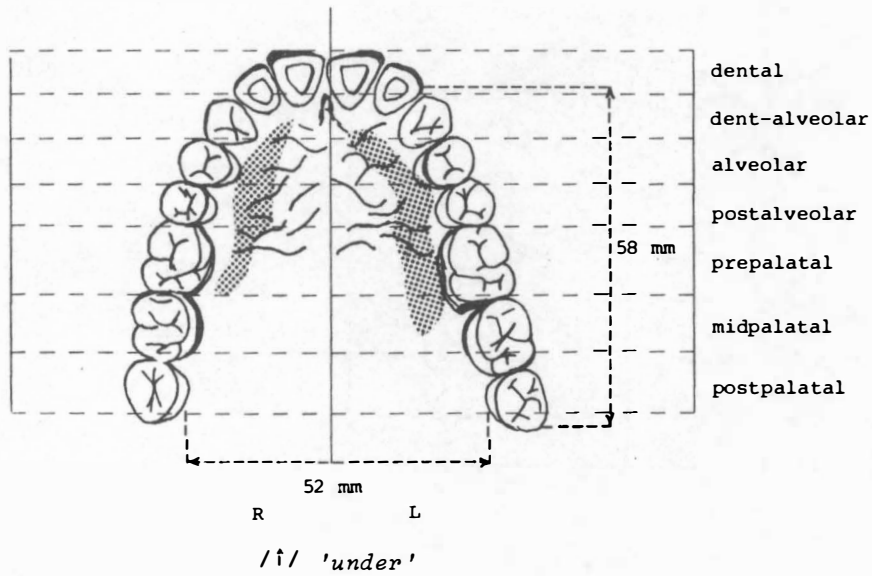
/a'râ/ 'pumpkin'

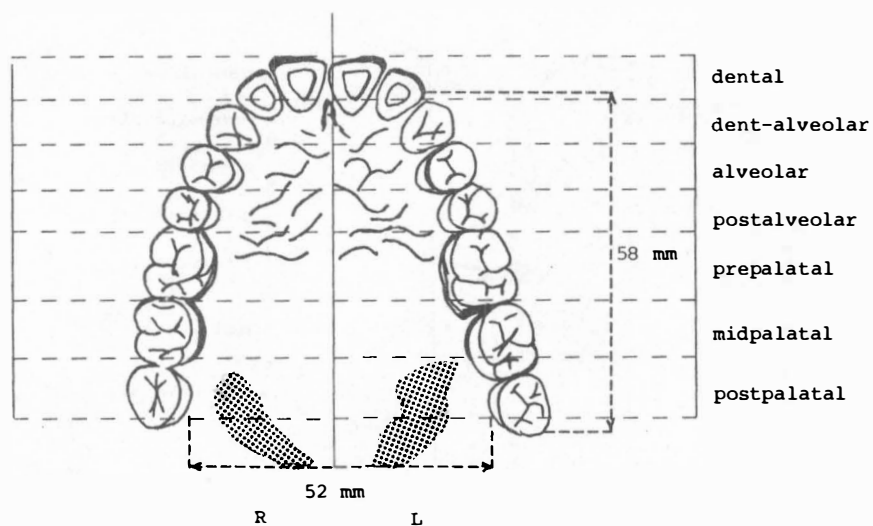




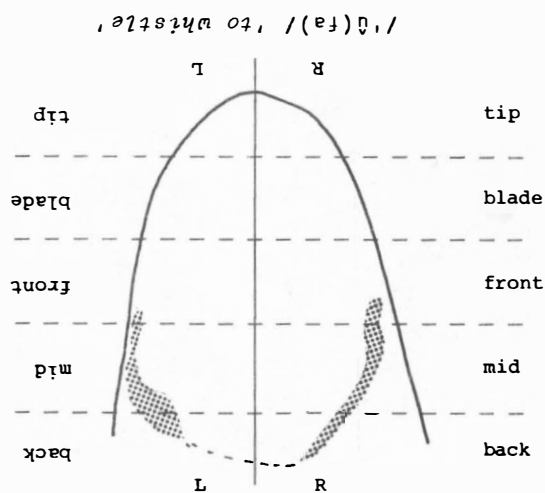




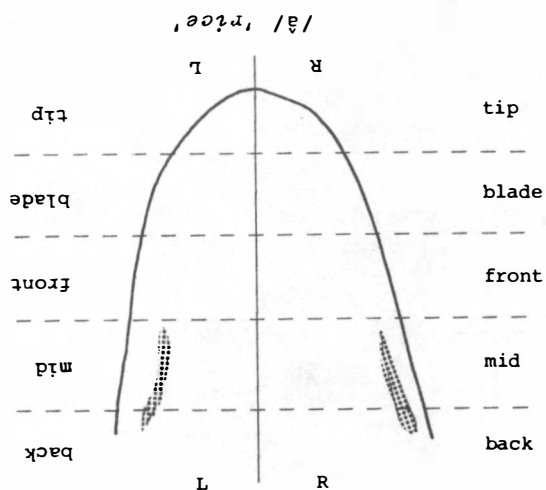
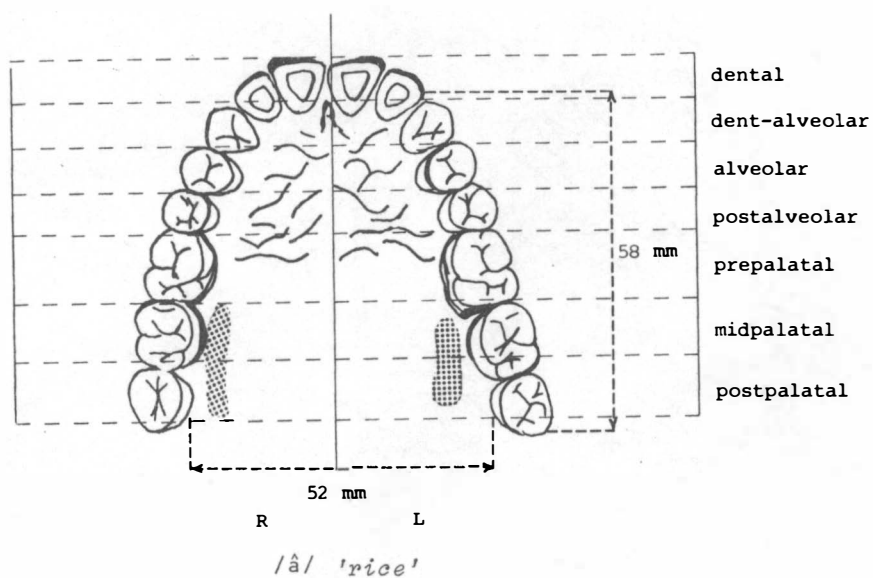


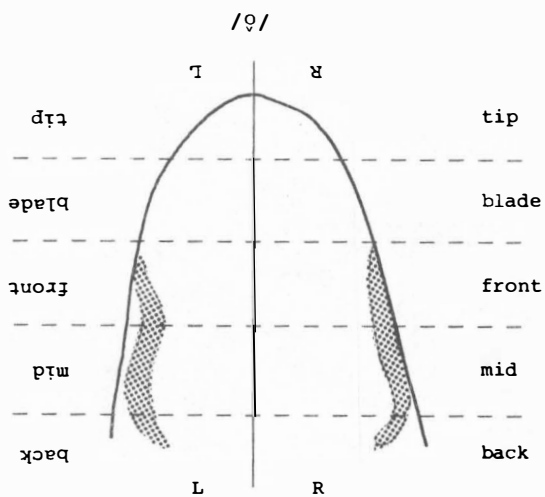
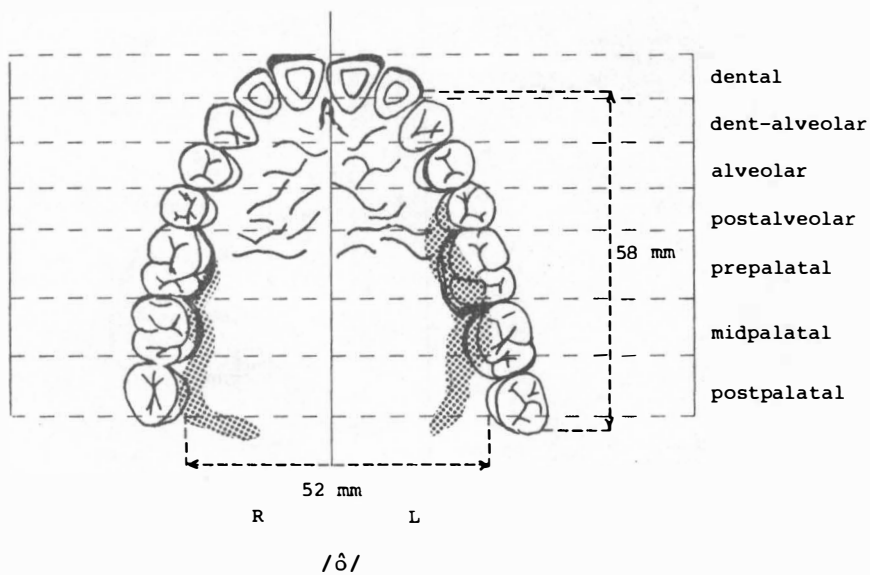


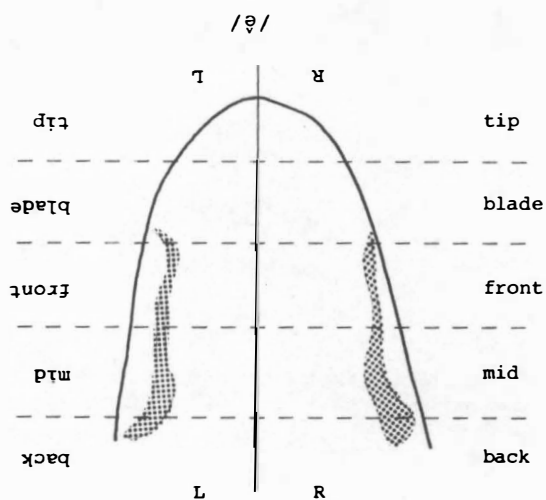
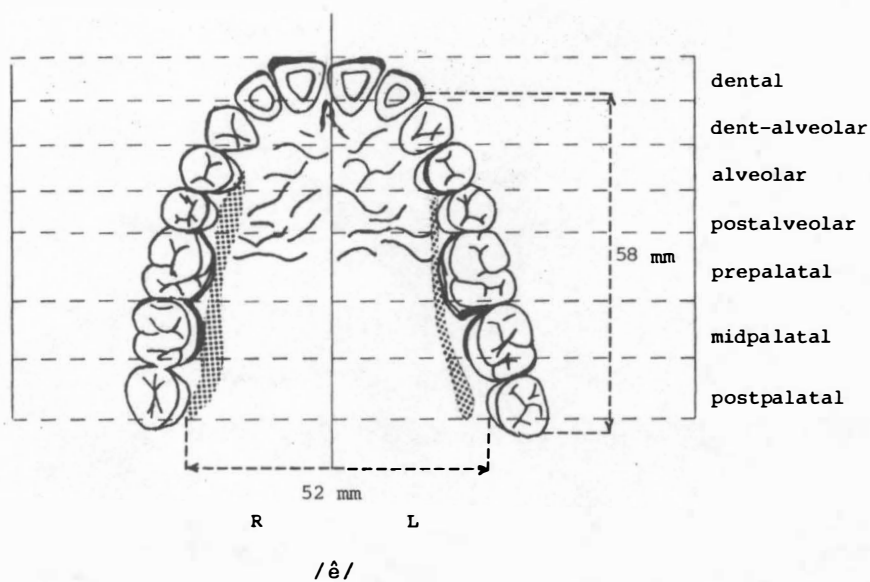
/'û(fa)/ 'to whistle'



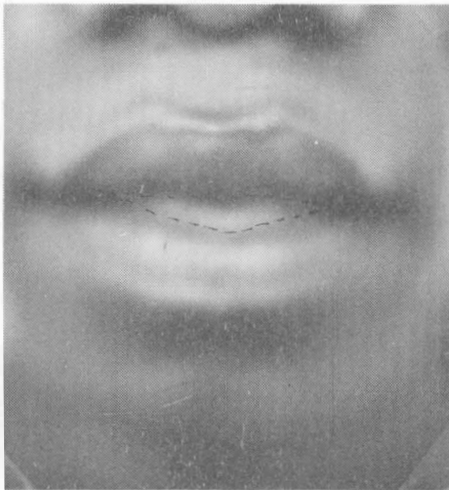
/'û(fa)/ 'to whistle'



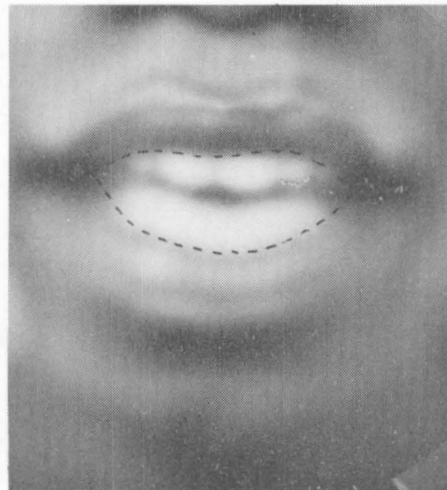




APPENDIX 3
Lip Photographs
Informant: L. Kamengmai

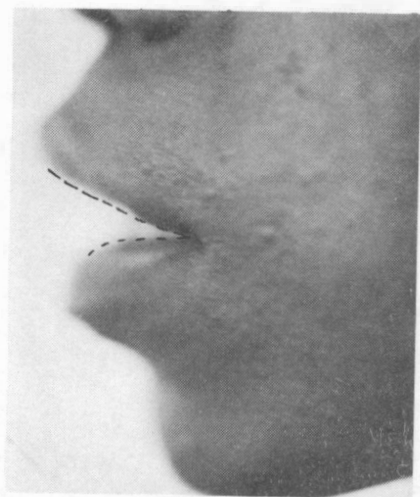


/tik/ 'tick'



/tik/ 'this mouse'

EDITOR'S NOTE: These photographs were taken under fieldwork conditions, and are not as well-defined as the author had hoped.



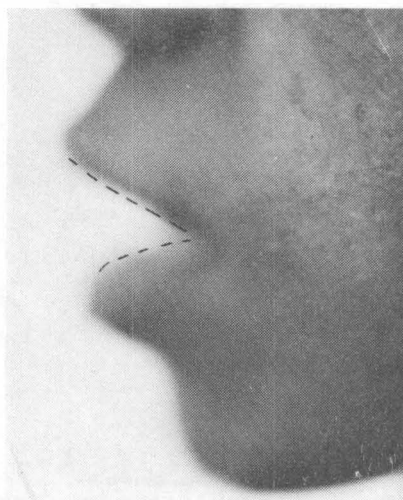
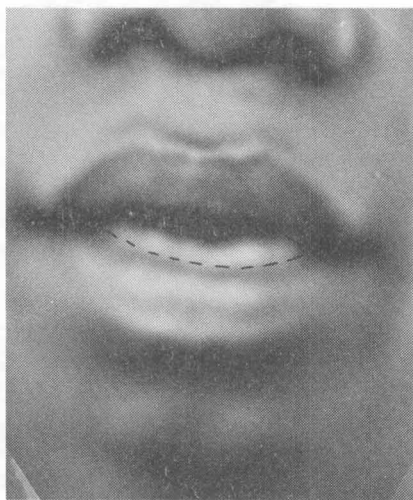
/we/ 'to go'



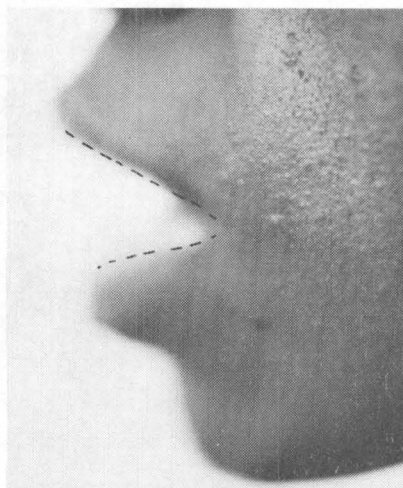
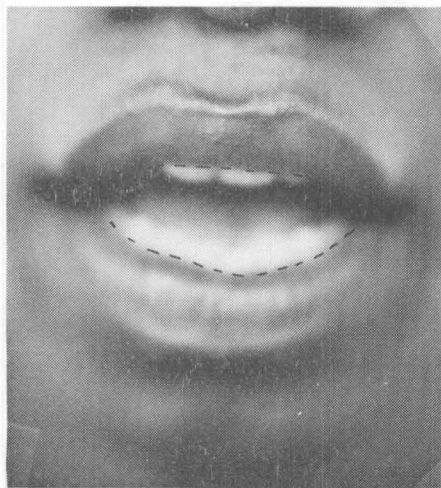
/wê/ 'blood'



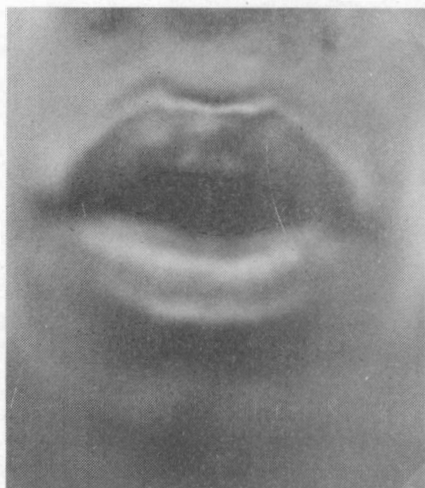
/wae/ 'mango'



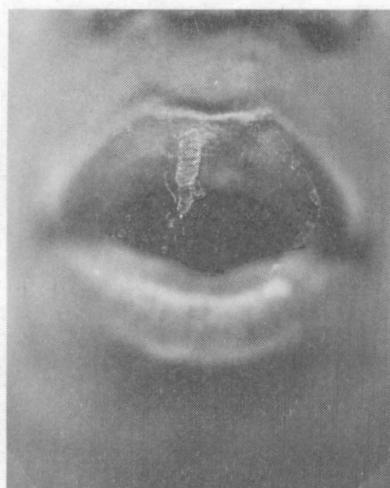
/saK/ 'grass'



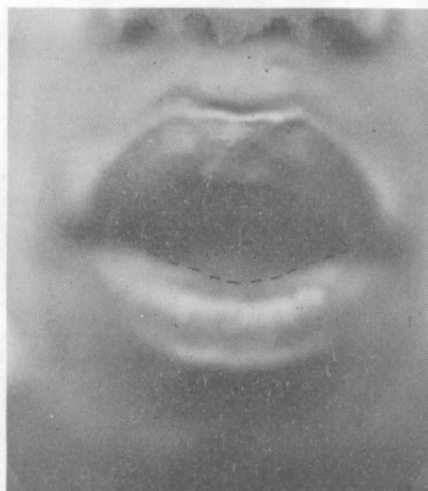
/sâK/ 'old'



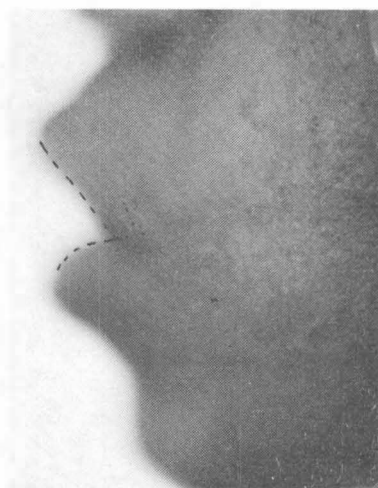
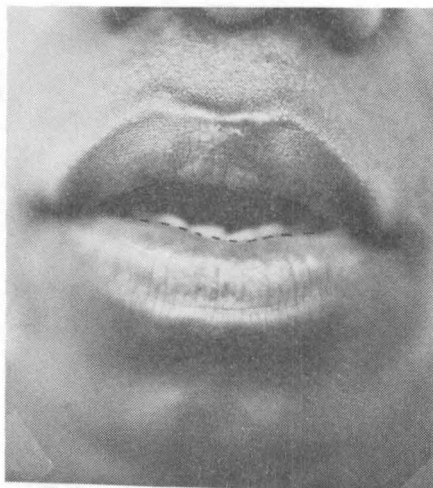
/wo/ 'there is'



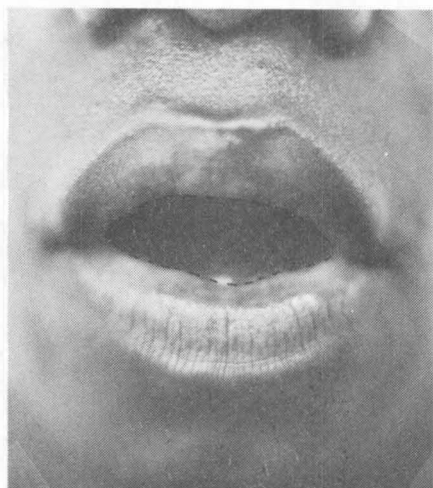
/wô/ 'to follow'



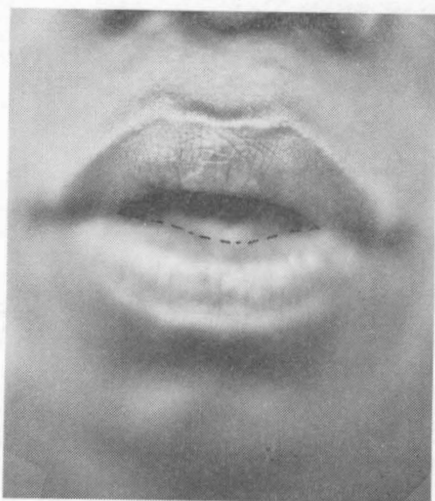
/wao/ 'to happen'



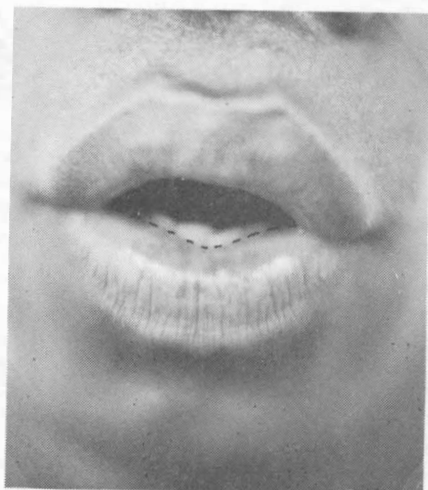
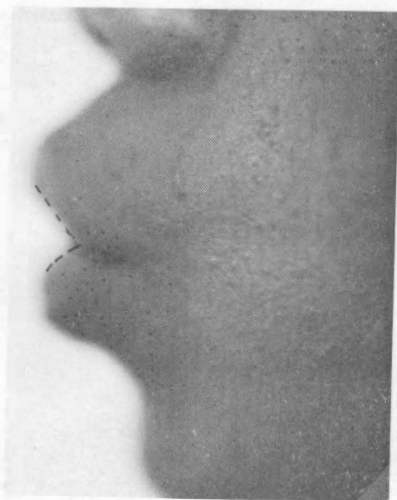
/ton/ 'jackfruit'



/tôn/ 'bamboo'

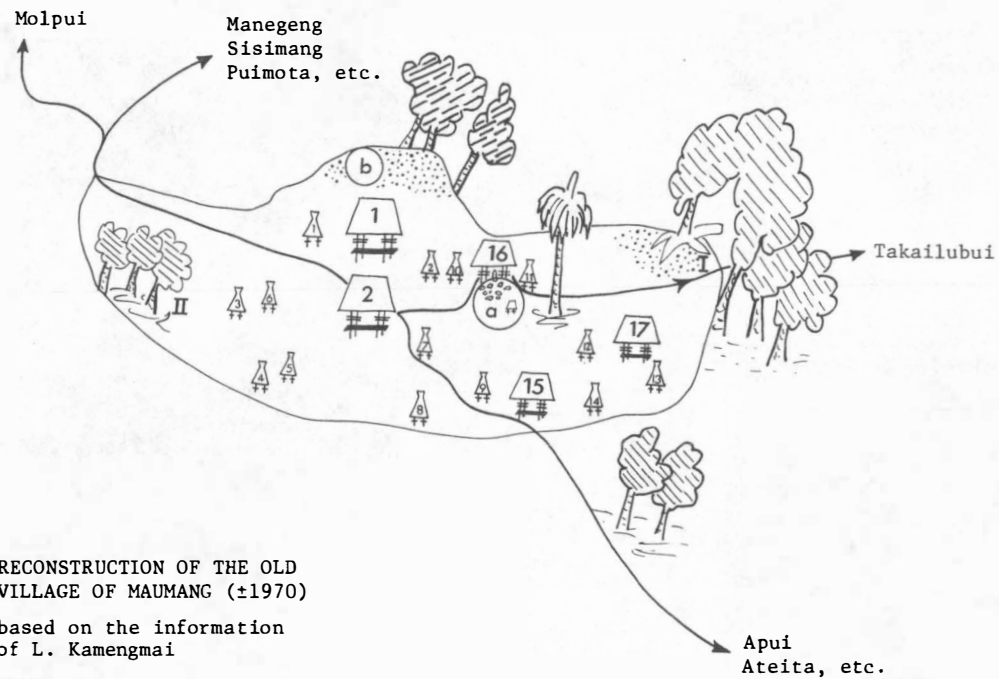


/puK/ 'big'



/pûK/ 'to break wind'






APPENDIX 4


Legend to Sketch of Old Maumang Village

I and II: sacred places; I is called /'puImanusâ/.

a and b: ritual dancing places; a is called /'wolmaIta/, b /'talmaIta/.

- 1 /al'maŋ 'bâI/ 'big storage house annex dwelling'
called /'wâŋwah/ or /'wâŋidama/
- 2 /al'maŋ 'bâI/ 'big storage house annex dwelling'
called /'wâŋwah/ or /'wâŋidika/
- 16 /al'maŋ 'bâI/ 'big storage house annex dwelling'
called /ma'rah/ (burnt down in ±1964)
- 15 /al'maŋ 'bâI/ 'big storage house annex dwelling'
called /'wolwah/ (burnt down in ±1964)
- 17 /al'maŋ 'bâI/ 'big storage house annex dwelling'
called /'lonwah/ (?)

 limestone formations

 stones and lingus



Tamarindus indica; Pohon Asem



Aleurites moluccana; Pohon Kemiri

Below the inhabitants are listed according to their place of domicile: those who had already left the village before 1970 are marked with an asterisk. After the name of the wives the place of origin has been given preceded by '<'. Daughters who had found a husband and consequently did not stay in the village any longer have '>' after their name followed by the name of the village of their husband. In 1970 some of the houses and granaries were not used permanently any more since a part of the inhabitants had moved to Molpui at that time. In 1971, 1972 everybody went to Bukapiting except the inhabitants of 11 and 16. † = deceased, (m) = 'male', (f) = 'female'.

There are four clans in the village organised around their respective /aI'maŋ 'bâI/ as follows:

- 2, 3, 4, 5, 7 belong to /'wâŋidika/
- 6, 9, 10, 11 belong to /'mârah/
- 17 belongs to /'loUwah/
- and 1 belongs to /'waŋidama/

The numbers after the villages refer to Map II. The names of the villages are written here according to the Indonesian orthography.

(1) /'laŋwô/ ~ /'woImuI/ <Manegeng (64)

2 children:

- 1. /'lôlân/ (f)
- 2. /'maUmaU/ (m)

They look after wife and children of /'lânwo/'s older brother

/'leTfâ/† ~ /'woIleT/ <Sisimang (65)

3 children:

- 1. /'letmani/ (m)
- 2. /'laUsama/ (m)
- 3. /'lolaŋ/ (f)

(2) /'moIsiŋa/ ~ /'puIlaU/ <Takaikul (61)

5 children:

- 1. /'wollan/ (f) >Saimang (26)
- 2. /'wôteI/ (m) ~ /'puImaU/ <Manegeng (64)
- 3. /'lônkameŋ/ (f)
- 4. /ka'maUkuI/ (m)
- 5. /'lonleT/ (f)

(3) /sa'lari/ ~ /'lomaU/ <Moikameng (66)

5 children:

- 1. /'letmaU/ (m) ~ /'puIlaŋ/ <Manegeng (64)
- 1 child:
 - 1. /sa'lari/ (m)

2. /ta'manalân/ (f) >Sisimang (65)
 3. /'wollân/ (f) >Sisimang (65)
 4. /'lonasâ/ (f) >Puimota (37)
 5. /a'sâmal/ (m) ~ /si'naŋleI/ <Puiwela (67)
- (4) /'fâsâ/ ~ /'puIwela/ <Lawamaita (59)
- 2 children:
1. /'wollan/ (f) (became a nun)
 2. /ta'kaIlân/ (m)
- (5) /sa'lari/† ~ /'woIlaU/ <Atoita (28)
- 2 children:
1. /ka'maUkuI/ (m)†
 2. /'maIlaU/ (m) ~ /'lônkamen/ <(Mauman no.4)
- (6) /a'sâmaU/ ~ /si'îlâmaU/
- 6 children:
1. /'lânleT/ ~ /si'îlâleT/ <Sisimang (65)
- 4 children:
1. /'letmal/ (m)
 2. /'wosâ/ (m)
 3. /si'îlâmaI/ (f)
 4. /si'îlâleT/ (f)
 2. /'laUleI/ (m)
 3. /'maUsama/ (m)*
 4. /si'naŋwaI/ (f) >Ateita (28)
 5. /'soIlân/ (f) >Manegeng (64)
 6. /si'naŋsibo/ (f) >Northern Alor
- (7) /'lânkamen/ ~ /'lomaU/ <Moikameng (66)
- 6 children:
1. /a'sâmal/ (m)* ~ /'talmaI/* <Saimang (26)
- 3 children:
1. /lânkamen/ (m)*
 2. /'fâlaU/ (m)*
 3. /'lomaU/ (f)*
 2. /'laUwô/ (m)* ~ /'kolfâ/* <Puigeng (40)
 3. /'lôkamen/ (f) >Atoita (28)
 4. /'laUhfâ/ (m) ~ /'puIkamen/ <Manegeng (64)
 5. /'laUleT/ (m)
 6. /'lâsâ/ (m)

(8) empty

(9) /'lâŋkameŋ/ ~ /'wolasâ/† <Atoita (28)

4 children:

1. /ka'rîlaŋmaI/ (f) >Manegeng (64)
2. /'maUtaKaI/ (m) ~ /'lokame / <Sisimang (65)
3. /'kalinmaI/ (f)
4. /'maIlaU/ (m) (= Markus Mailau, see 1.4.)

(10), (16) /ka'meŋmaI/† ~ /'kolasâ/ <Takaikul (61)

2 children:

1. /'laUmaU/ (m) (= Linus Kamengmai, see 1.4.)
2. /'puIlân/ (f) >Lawamaita (59)

(11) /'laUmaU/ ~ /'kolfâ/ <Takailubu (-)

2 children:

1. /ka'meŋmaI/ (m)
2. /'muIleT/ (m)

(12), (13), (14) were empty

(17) /a'teIlaU/ ~ /'silâmaU/ <Ateita (28)

5 children:

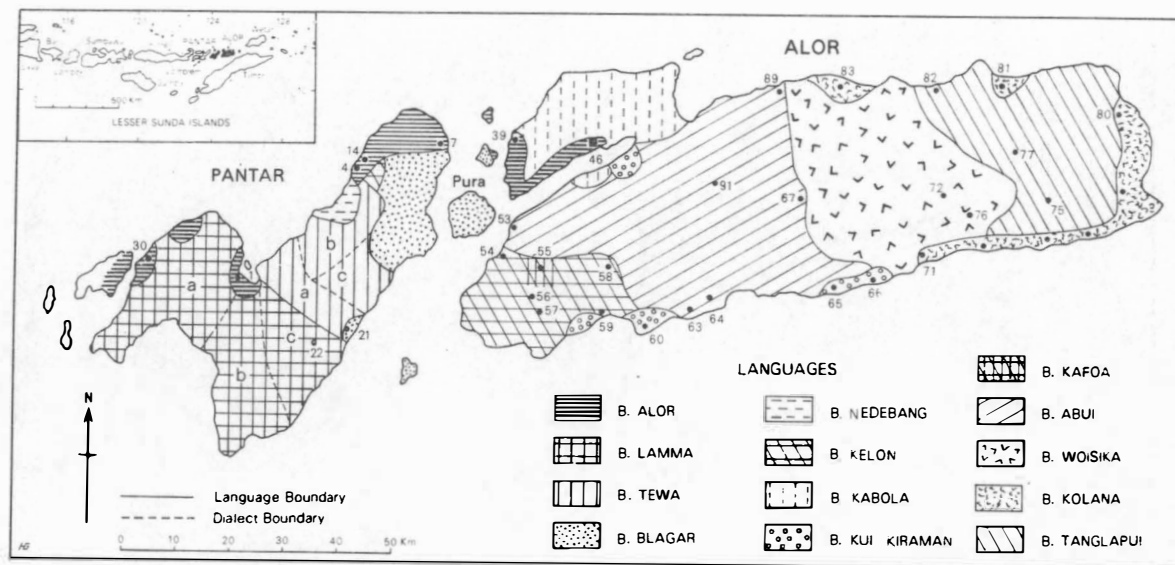
1. /'lâŋkameŋ/ (m)
2. /'onleT/† ~ /'lolân/ <Saimeng (26)

3 children:

1. /'silâmaU/ (f)
2. (?) /'silâmaU/ (f)
3. ?
3. /'sallau/† ~ /'lôŋkameŋ/ <Pulmota (37)

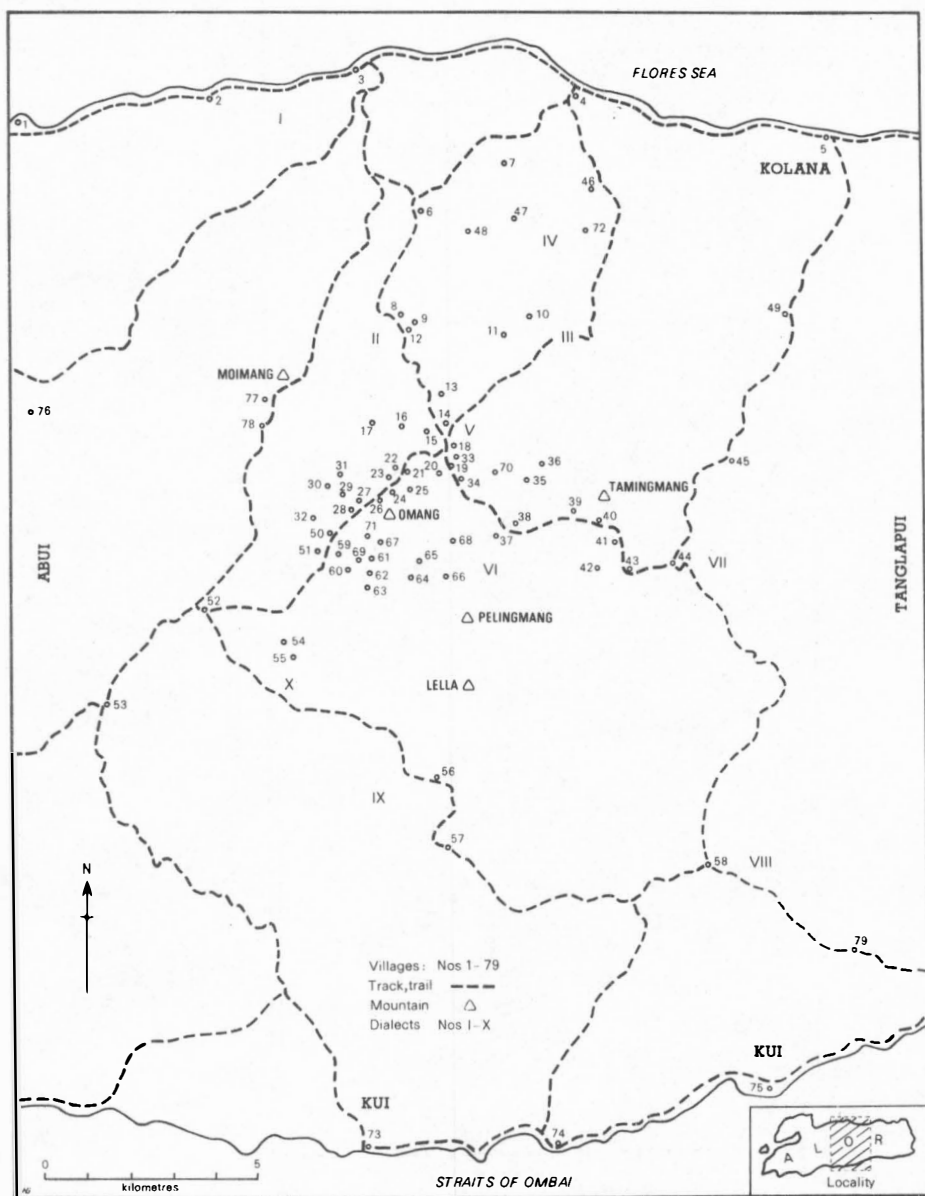
2 children:

1. /a'teIlaU/ (m)
2. /'kolmaI/ (f)
4. /'talmaU/ (f) >Ateita (28)
5. /'puIlân/ (f) >Northern Alor^{15,16}



MAP I: LANGUAGES OF ALOR, PANTAR AND PURA

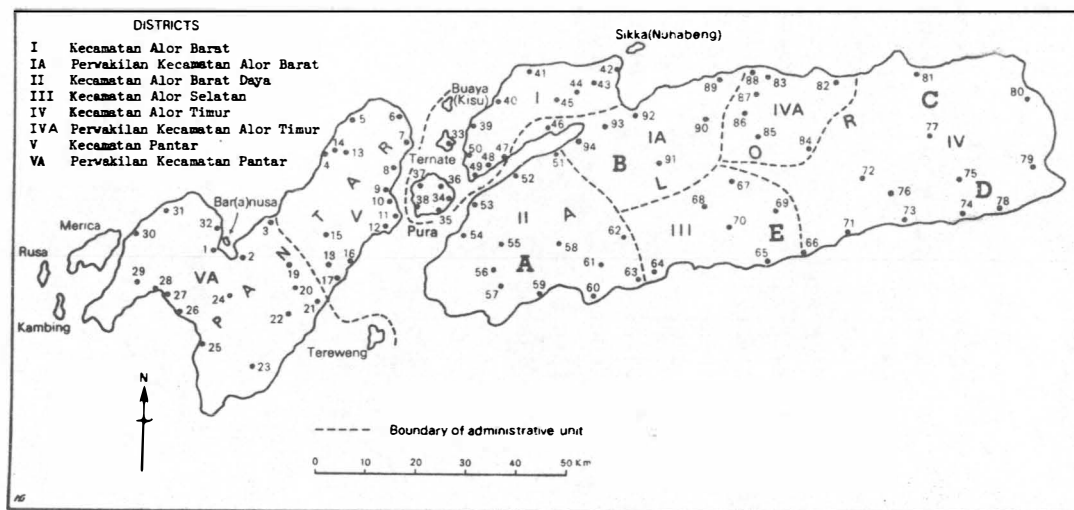
For the numbers see Map III (p.176)



MAP II: THE WOISIKA LANGUAGE AREA

LEGEND TO MAP II

Villages		Mountains	
1. Likuwatang	41. Sinokila	A	Moimang (870 m)
2. Baum1	42. Leimang	B	Omang (1087 m)
3. Letlei/Limbur	43. Timomang	C	Pelingmang (?)
4. Adagai	44. Pido	D	Lella (1270 m)
5. Taramana	45. Alata	E	Tamingmang (1268 m)
6. Bukapiting	46. Passi		
7. Kamot	47. Bondapui		
8. Petimpui	48. Labapui	Variants	
9. Labapang	49. Lapai	I	Lembur
10. Kamana	50. Butabai	II	Petimpui
11. Maufai	51. Waimi	III	Kamana
12. Kamangpui	52. Maikawada	IV	Kamot
13. Pamako	53. Kalaisi	V	Kamengmi
14. Kamengmi	54. Ateibai	VI	Ateita
15. Kaumo	55. Apui	VII	Pido
16. Baufo	56. Sidabui	VIII	Langkuru/Kolomana
17. Supai	57. Silaipui	IX	Silaipui
18. Woisika	58. Langkuru	X	Apui
19. Kawahmi	59. Lawamaita		
20. Laupra	60. Bilamang		
21. Karolsak	61. Takaikul		
22. Pilama	62. Maumang		
23. Lamana	63. Molpui		
24. Domang	64. Manegeng		
25. Lambeta	65. Sus(u)imang		
26. Saimang	66. Muikameng		
27. Woilih	67. Puiwela		
28. Ateita	68. Adilau		
29. Dawai	69. Waikokmang		
30. Sumang	70. Watemana		
31. Kamanapang	71. Bukapui		
32. Manasamang	72. Umang		
33. Sisawet	73. Kiraman(g)		
34. Puimang/Puimi	74. Batulolong		
35. Esmana	75. Mademang		
36. Woikarong	76. Atimelang		
37. Puimota	77. Silaimang		
38. Atomang	78. Bulmang		
39. Kalingtuk	79. Kolomana		
40. Pukeng/Puigeng			



MAP III: LOCALITIES AND ADMINISTRATIVE UNITS

MAP III: LIST OF VILLAGES AND FORMER LANDSCHAPPEN

1. Blangmerang	41. Kokar	81. Takala
2. Benaang	42. Mali	82. Maukuru
3. Bagang	43. Tulta	83. Taramana
4. Kabir	44. Lawahing	84. Pido
5. Pandai	45. Pitumbang	85. Woisika
6. Manuseli	46. Kalabahi	86. Bukapiting
7. Lamahulu	47. Dulolong	87. Kamot
8. Tuwaabang	48. Ampera	88. Adagai
9. Bakalang	49. Alor Kecil	89. Letley
10. Koli Jahi	50. Alor Besar	90. Awasi
11. Warsalelang	51. Moru	91. Atimelang
12. Abangniwang	52. Wolwal	92. Mebung
13. Panggar	53. Matap	93. Watatuku
14. Bajo	54. Lola	94. Welai
15. Sargang	55. Habolat	
16. Tamalabang	56. Probur	A. Kui, Mataru
17. Nuhawalla	57. Halerman	B. Alor
18. Lelangabang	58. Gendok	C. Kolana
19. Kakamauta	59. Buraga (Tribur)	D. Pureman
20. Airmama	60. Lerabaing	E. Batulolong
21. Toang	61. Biakbuku	
22. Mauta	62. Mataru	
23. Jeri	63. Eibiki (Mataru Selatan)	
24. Latuna	64. Pandangalang	
25. Ilmake	65. Batulolong (Kiramang)	
26. Puntaru	66. Sibera	
27. Bolowang	67. Apui	
28. Wolu	68. Kalaisi (Barat)	
29. Mobubaa	69. Silapui	
30. Kayang	70. Sidabui	
31. Beangonong	71. Mademang	
32. Kalabahi Wowang	72. Langkuru	
33. Bogakele	73. Peitoku (Purnama)	
34. Apuri	74. Pureman	
35. Retta	75. Salamana	
36. Harilolong	76. Kolomane (Mamper)	
37. Limarahing	77. Lantoka (Tanglapui)	
38. Bira	78. Erana	
39. Sebanjar	79. Maritaing	
40. Seeng	80. Kolana	

N O T E S

1. Trubetzkoy 1929, 1931, 1935, 1939; Ebeling 1960, 1966, 1968; Martinet 1949, 1956, 1960, 1968a, 1968b. See also Alarcos Llorach 1968, Fischer-Jørgensen 1975 and Siversten 1966.
2. I do not include in this survey the so-called Kupang Malay or the languages spoken by small colonies of people who quite recently settled there, e.g. Buton, Bugis, Makasar.
3. The phonemic transcription will be enclosed between slanting lines, the phonetic transcription in square brackets. Stress is indicated by ' before the syllable which carries the prominence peak. Glosses (between ' ') are approximate renderings of the originals; citations are between " ".
4. or [i₁s₁i], [i₁ʃ₁i] if = [i₁s] = [ʃ] = [s₁i].
5. I leave timbre out of consideration here.
6. Three instances are given where optionalities and neutralisation co-occur as follows:
 - a) In Dayak Ngaju (see Mihing and Stokhof 1977) /a/ and /ə/ are neutralised in words with three or more syllables in [#C-(N)C]:

/tAmbaliK/ → [tamb'alik-, təmb'alik-] 'overturned'

/lAlawah/ → [ləl'awah, ləl'awah] k.o. wasp

The /A/, however, can be omitted in some words, but is obligatory in others. The absence of this archiphoneme is optional while in the basic form of the word the /A/ is necessarily present:

/pAlaku/ (basic form), /plaku/ (heavy form) 'dowry'

/kAlambi/ (basic form), /klambi/ (heavy form) 'robe'

but not */tmbalik/, */llawah/.

b) In Tehit, a Papuan language spoken in the Bird's Head peninsula, Irian Jaya (see Flassy and Stokhof, forthcoming), [s^j] is interpreted as a sequence /sy/ since there is no opposition [s^j] vs. [sj] in the language (see above, 2.9.). Any stem-final tautosyllabic cluster /sy/ can be replaced by /Is/ (/I/ being the archiphoneme of /i/ and /y/ in [V-C]): the relative ordering of the palatal and the dental segment is not distinctive in those cases. However, the converse does not hold true: not any /Is/ can be replaced by /sy/. The relative ordering of /sy/ is optional in relation to /Is/:

[qas^j ~ qajs ~ 'qaɽs] 'chopstick' + /'qaIs/ (basic form), /qasy/ (heavy form), but [tajs ~ 'taɽs] (not *[tas^j]) + /'taIs/ 'I go down'

c) The Russian phonemes /e, i, a, o/ are neutralised to /ə/ after unpalatalised consonants in antepretonic position. domovoj 'brownie' and dymovoj 'smoke' (adj.) show both [dəmə'voj] /dəmə'voy/. In explicit speech, however, the former word may be realised as [dəmə'voj] + /dAmAv'oy/ and the latter as [dɪmə'voj] + /dImAv'oy/. /A/ (archiphoneme of /a/ and /o/) and /I/ (archiphoneme of /i/ and /e/) are heavy archiphonemes, since they can always be replaced by their basic counterpart: the archiphoneme /ə/, but the opposite does not hold (Ebeling 1966).

7. Number is neutralised in the third person; gender is not expressed.

8. A. once gave /'râku/ as variant form of /a'râku/ 'young pumpkin'. This form was rejected by all other informants. The deletion is understandable in this position, see 3.4.6. Also A /'ranta/ along with A, L, R, J, M /a'ranta/ 'criminal' (< ? Portuguese errante).

9. See note 8 and chapter 8.

10. L.K. also [se'gara] + /se'gara (~ se'jara)/.

11. This chart is partly based on the example given in Ladefoged 1964, table 1.

12. In stories sometimes a prepausal lax vowel tends to be prolonged too (in combination with an inconclusive contour). Especially, when the narrator tends to use intervals to reflect on the immediate continuation of his story.

13. Forms in /t-/ are lacking */ta(l)/, */têŋ/.

14. See *Pedoman umum ejaan bahasa Indonesia yang disempurnakan* (Department of Education and Culture 1975). This orthography has been designed along the lines developed in Stokhof 1976. For other orthographical proposals by the same author, see Mihing and Stokhof 1977, and Sande and Stokhof 1977.

15. The list showing the (mutual exclusive) initial components of male and female names (see Stokhof 1977:38) can now be expanded as follows:

masculine		feminine	
an-	asâ-	adi-	
asa-	ateI-		
bila-			
fâ-		fo-	
kamaU-	kawaŋ-	kaI	koI-
kameŋ-	kaUŋ-	kaliŋ-	kol-
kamiŋ-		karî-	
lâ-	laIh-	lo-	lon-
lah-	laU-	lô-	lôn-
laŋ-	laUh-		
lâŋ-	let-		
ma-	mal-	mataI-	
maI-	manet-		
makan-	mani-		
makiliŋ-	maU-		
o-			
on-			
sal-		puI-	
siŋa-		silâ-	siŋaŋ- sun-
taŋ-		silo-	soI-
takaI-		tal-	
wô		tama-	
		woI-	
		wol-	

16. I want to thank Alma E. Almanar and my wife who assisted me in the typing of the manuscript.

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